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THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JANUARY 3RD, 1925.

An Address
ON
IODINE IN EXOPHTHALMIC GOITRE.

DELIVERED BEFORE THE NORWICH MEDICO-CHIRURGICAL SOCIETY, OCTOBER 14TH, 1924,

BY

FRANCIS R. FRASER, M.D., F.R.C.P.E.,
DIRECTOR, MEDICAL PROFESSORIAL UNIT, ST. BARTHOLOMEW'S HOSPITAL.

Introduction.

A RELATIONSHIP between endemic goitre and iodine appears to have been recognized for many years. Coindet[1] in 1820 reported that by the administration of iodine goitres could be diminished in size. Chatin,[2] a French chemist, wrote extensively in 1850 and the years following, reporting his investigations on the amounts of iodine in air and soil and water, and he drew attention to the high incidence of endemic goitre and cretinism in localities where the amount of iodine was low. He further maintained that endemic goitre could be prevented by increased ingestion of iodine.

Following Chatin's work, iodine was used extensively in the treatment of goitre until evidence accumulated to show that, following iodine treatment of endemic goitre, the subjects frequently developed tachycardia, tremor, loss of weight, etc. Krehl,[3] Kocher,[4] and others, pointed out that iodine treatment in simple goitre could bring about a condition of exophthalmic goitre, or Graves's disease, and warned against its use. Probably for this reason its employment became much less general. In recent years it has been revived, largely as the result of the work of Marine.

In 1896 Baumann,[5] by demonstrating the presence of iodine in the normal thyroid gland, initiated a series of valuable investigations. The normal thyroid tissue, when dried, contains from 0.1 to 0.6 per cent. of iodine, and is eight to ten times richer in iodine than any other tissue in the body. Magnus-Levy,[6] in 1895, showed that thyroid tissue has a powerful effect on heat production in the body, and Kendall[7] in 1914 isolated in crystalline form the substance thyroxin, which has the same action on heat production as the whole gland substance, and which contains 65 per cent. of iodine. Marine and Lenhart[8] showed that when the iodine content of human glands falls below 0.1 per cent. the gland shows changes of hypertrophy and hyperplasia, and that in glands showing a high degree of hyperplasia iodine is found only in traces or is absent. If the gland reverts to the resting condition—that is, to the colloid type of goitre—the iodine content rises. If the gland tissue contains over 0.1 per cent. of iodine histological examination will show no hypertrophic changes. Marine and Lenhart further showed that, after a partial thyroidectomy in experimental animals, hyperplasia of the remainder did not occur unless its iodine content fell below 0.1 per cent., but that if as much as three-fourths of a gland were removed and iodine administered to the animal, the hyperplasia that would otherwise have occurred could be prevented.

On the basis of these researches the prevention of endemic goitre by means of the administration of minute quantities of iodine is now practised in many parts of the world.

Exact knowledge of the cause of goitre is, however, still small. Whatever the cause, it would appear that iodine deficiency is one step in the process. It seems probable from the work of Marine, and of McCarrison[9] in India, that this deficiency may result (1) from a lowered intake of iodine, or (2) from a normal intake and a raised demand for iodine on the part of the body. Their researches point to several ways in which this increased need for iodine may be brought about. At certain periods in life, such as puberty, pregnancy, lactation, there seems to be an increased need of iodine. Faulty dieting, and especially excess of fat in the diet, has been shown to lead to hypertrophy and hyperplasia, and the addition of iodine can prevent this response of the gland to excess of fats. McCarrison has postulated a fat-iodine-thyroid balance on the results of these experiments. Pollution of food and of water has also been shown to produce hypertrophy and hyperplasia, and that this is preventable by the ingestion of iodine. All these researches refer to the simple hypertrophy and hyperplasia that is seen in endemic goitre and sporadic goitre, or to experimental conditions in animals that show the same histological changes as are seen in these goitrous conditions in man. These conditions in the individual may lead to the subsequent development of myxoedema, and the offspring of goitrous females are frequently cretins. In myxoedema and cretinism there is indisputably a lack or absence of the iodine-containing thyroid substance, and Marine has pointed out that endemic goitre and sporadic goitre, as well as myxoedema and cretinism, must be regarded as deficiency diseases, and that in all of them there is a deficiency of iodine. The goitre is the result of a response on the part of the thyroid gland to this deficiency. In myxoedema and cretinism the gland is unable to respond because of atrophy or because of congenital deficiency.

In patients with exophthalmic goitre—which in many respects appears to be hyperthyroidism—symptoms of myxoedema frequently develop, and every gradation may be found between these two apparently opposed states. In exophthalmic goitre the thyroid gland shows an exaggerated and irregular hyperplasia, and the iodine content is extremely low.

In 1920 McCarrison[10] reported that the hyperplastic thyroid glands that resulted in pigeons fed on an excess of butter without iodine showed on histological examination an irregular type of hyperplasia with vesicular budding similar to the picture seen in the glands of human cases of Graves's disease. In 1921 E. and M. Mellanby[11] reported that, in the course of their experimental work on rickets and on defective teeth in dogs, they found in the animals fed on an excess of butter a hyperplasia of the thyroid gland histologically resembling that seen in exophthalmic goitre, but that in the animals fed on an excess of fat in the form of cod-liver oil this hyperplasia did not result. They suggested that the high iodine content of the cod-liver oil was responsible for the difference.

These facts suggested that in exophthalmic goitre also an iodine deficiency might be present, and that the administration of iodine might have some therapeutic value in cases of this disease. Iodine therapy has been tried frequently in exophthalmic goitre, but an increased severity in the symptoms may result unless the dose is carefully regulated. This fact, and the frequently recorded examples of exophthalmic goitre symptoms developing during the treatment

of simple goitre with iodine, have led most authorities to issue strong warnings against its use if any symptoms of Graves's disease are present.

Such was the knowledge of iodine in relation to exophthalmic goitre a few years ago, when we commenced to study the therapeutic effect of iodine in cases of exophthalmic goitre. As so often happens, workers in other countries commenced similar studies at about the same time, notably in the Mayo Clinic, and after the results of our observations in the wards of the Medical Unit at St. Bartholomew's Hospital have been discussed reference will be made to several publications that have appeared in the last few months.

Preparation of Iodine Employed.

Throughout these observations the iodine preparation used has been the 10 per cent. tincture of the French *Codex*, in which the iodine is dissolved in 95 per cent. alcohol without the addition of any iodide. This preparation was selected because it contained no combined iodine. On adding it to milk the iodine is precipitated, but on stirring it is efficiently suspended, and the mixture is quite agreeable to take. It is probable that it is immaterial in what form the iodine is administered, so long as it is not in an inactive organic combination.

Results of Iodine Treatment.

Since March, 1921, we have been able to observe the action of iodine on 24 cases of exophthalmic goitre in the wards of the hospital. In addition to these cases there have been a small number who have received treatment as out-patients only, but in whom the conditions were not sufficiently under control to allow of deductions as to the effect of the treatment. In the following 8 of the 24 cases the results were sufficiently clear to justify detailed accounts of them in illustration of the action of the drug in exophthalmic goitre.

CASE I (Chart 1).

A woman, aged 27, who had noticed palpitation and shortness of breath in the beginning of 1922. In March they were sufficiently distressing to interfere with her work in the house, and swelling of the neck was noted. She was admitted on June 20th, 1922, as she had developed auricular fibrillation. This had disappeared by the next morning, but the heart rate was 120. Tremors were pronounced; exophthalmos was not pronounced, but von Graefe's and Joffroy's signs were present. The thyroid gland was symmetrically enlarged, soft, and pulsating. There was a muco-purulent discharge from a perforation of the right ear-drum, and both tonsils were septic. By July 3rd, when her basal metabolic rate was +48 per cent., the heart rate had settled to between 80 and 90 and the tremors were less, but she had lost weight steadily. The ear condition was being treated by syringing, and the general condition

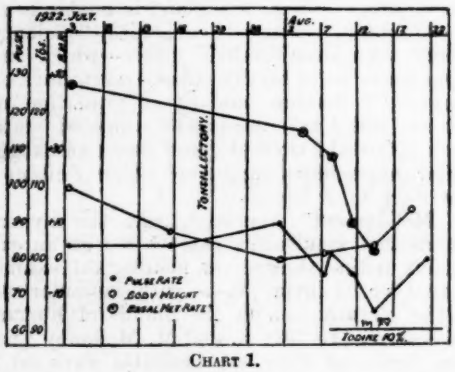

CHART 1.

was but little improved when, on July 21st, tonsillectomy was performed. By August 8th considerable improvement had taken place, the basal metabolic rate being +28 per cent. and the heart rate 82. Iodine was commenced in doses of ♏ xv daily, of the 10 per cent. solution in alcohol, and by August 11th the basal metabolic rate was +10 per cent. and the heart rate 76. On August 14th the basal metabolic rate was +3.5 per cent. and the heart rate 66, while she had commenced to gain weight. She was discharged from hospital, but in a few months' time was as bad as on admission. While an out-patient, although she felt better when taking iodine, it had no obvious effect, and when the auricles commenced to fibrillate again she was readmitted for surgical treatment.

CASE II (Chart 2).

A woman, aged 20, who for six months before admission in May, 1922, had noticed shortness of breath, swelling of the neck, prominence of the eyes, and nervousness. The heart rate was 110 to 120 on admission. The thyroid gland was symmetrically enlarged, soft, elastic, and pulsating. All the classical eye signs of exophthalmic goitre were present. With rest in bed the heart rate fell to 94, but she continued to lose weight, and the basal metabolic rate, which shortly after admission was +54 per cent., had by June 22nd fallen to +47 per cent. only. Commencing June 22nd, ♏ xv of the iodine solution were given daily, and this was increased to ♏ xxx on June 29th. By July 10th the heart rate was

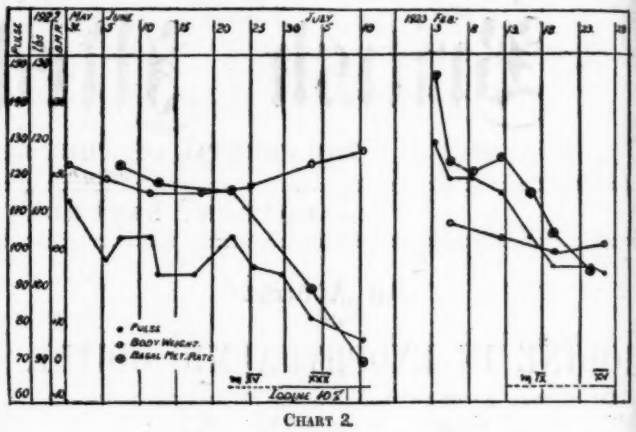

CHART 2.

76, the basal metabolic rate was not increased above the normal level, and the body weight was steadily increasing. On discharge from hospital the condition soon relapsed, and by October the greatly increased hardness of the thyroid gland caused the administration of iodine to be stopped. It was started again later at a smaller dose, as the patient thought she was better when taking it, but it had no noticeable effect, and she was readmitted in February, 1923, with a heart rate of 130, and basal metabolic rate of +68 per cent. With rest in bed the heart rate dropped to 110 to 120, and the basal metabolic rate to +56 per cent. Iodine was started, in doses of ♏ ix of the solution daily, on February 13th. On February 24th the heart rate was 96, and the basal metabolic rate +25 per cent., and a few days later she was transferred to the surgical side for thyroidectomy.

CASE III (Chart 3).

A married woman, aged 49, who was said to have had exophthalmic goitre off and on since the age of 33. There had been a recent increase of palpitations, sweating, headache, and nervousness, and she was admitted in November, 1922, with auricular fibrillation, which disappeared, however, after a few hours' rest in bed. The following day the heart rate was 110 to 120. The thyroid gland was enlarged throughout, but the left lobe was larger than the right, and it was firm and elastic and not markedly vascular. Flushing and sweating were marked, and there was a fine generalized tremor. The eyes were somewhat staring and glistening, but no definite eye signs were present. With rest in bed for three weeks, the initial basal metabolic rate of +41 per cent. had fallen to +32 per cent., the heart rate was not altered, and the body weight had fallen steadily. Iodine was commenced on

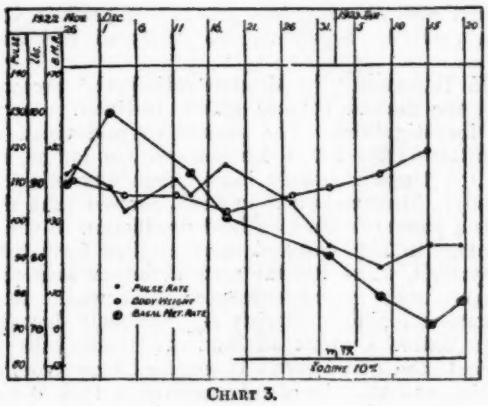

CHART 3.

December 19th, in doses of ♏ ix daily, and by January 15th, 1923, the basal metabolic rate was +3 per cent., the heart rate 94, and she had gained 16 lb. in weight. Her general condition was greatly improved, and she was discharged. After a few months at home her condition was as bad as on admission, and although she always felt better when taking iodine, it had no obvious effect, and partial thyroidectomy was ultimately performed. Some doubt existed as to the true diagnosis in this case, but the histological examination of the gland confirmed the diagnosis of exophthalmic goitre. While an out-patient, continued administration of iodine for several months, even in doses as small as ♏ iij daily, caused the gland to become very hard, and increased the excitability of the patient and the rate of the heart.

CASE IV (Chart 4).

A man, aged 40, who for two years had noticed nervousness, palpitations, and weakness, and for six months before admission had noticed swelling of the neck. He had lost 2 st. in a year, and had frequent attacks of sore throat. On admission to hospital in April,

1923, the heart rate was 100 to 120, and the basal metabolic rate was +75 per cent. There was slight exophthalmos, the palpebral fissures were wide, and the conjunctivae glistening. The thyroid gland showed a uniform enlargement, it was soft and pulsating, and there was a loud bruit audible over it. A fine tremor was present. The tonsils were large and showed points of exudate. Tonsillectomy was performed on May 8th, and on May 16th the

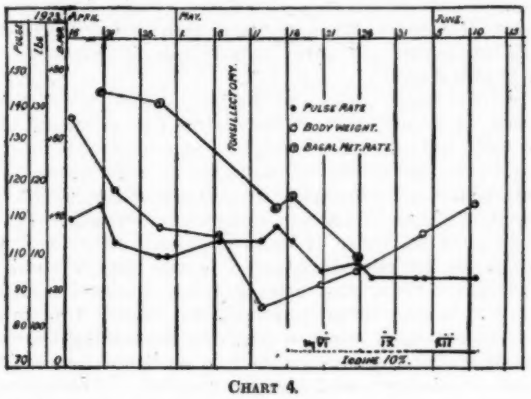

CHART 4.

basal metabolic rate was +46 per cent., the heart rate was as on admission, and he had lost weight steadily. Iodine ♏ vj daily was started on May 16th, and later increased to ♏ ix and then to ♏ xij, and he commenced to improve in a striking manner. By June 10th the heart rate was 94, and he had gained a stone in weight. On May 25th the basal metabolic rate was +29 per cent. Unfortunately no further estimations were made. Partial thyroidectomy was performed on June 21st.

CASE V.

A woman, aged 43, who complained of weakness and tremors following an attack of tonsillitis in November, 1921. In May, 1922, the swelling in the neck was noticed, and in December, 1922, she was told her eyes had become prominent. On admission, on February 23rd, 1923, the heart rate was 120, and the basal metabolic rate + 61 per cent. The thyroid gland was uniformly enlarged, soft, and pulsating, and a loud bruit was heard over it. Exophthalmos and von Graefe's and Stellwag's signs were present. The patient's voice was husky, there was a dry cough, and the tonsils were enlarged and septic. There was a fine generalized tremor of the muscles. Considerable improvement resulted from rest in bed, and on March 7th, when iodine was commenced, the heart rate averaged 104, and the basal metabolic rate was between +30 per cent. and +40 per cent. Two weeks later the basal metabolic rate was +16 per cent., the heart rate 84, and the body weight was rising. On stopping iodine for a week, the basal metabolic rate rose to +39 per cent., the heart rate to 116, and the weight ceased to increase; after recommencing it the basal metabolic rate had dropped again to +16 per cent. at the end of two weeks, the heart rate to 90, and she was again gaining weight. In spite of continuing the administration of iodine, the improvement was not maintained. The onset of an attack of tonsillitis may have been responsible for this, or a less strict condition of rest, or both.

CASE VI.

A married woman, aged 41, who had had a history of exophthalmos for five years, palpitations, dizziness, and digestive troubles for more than one year, and a vague history of swelling in the neck from time to time. On admission, in November, 1923, general nervousness and excitability were marked. The heart rate was 112, and the basal metabolic rate +60 per cent. to +70 per cent. The thyroid gland was soft, symmetrically enlarged, and a bruit was audible over it. Besides exophthalmos, all the classical eye signs were present, but there was no tremor. With rest in bed the heart rate dropped to 98, but there had been little improvement otherwise when iodine was started in doses of ♏ vj daily on December 11th. On December 24th the basal metabolic rate was +29 per cent., and the heart rate had been as low as 86. The patient became very excited during the Christmas festivities, and this was held to account for the fact that for a period of three or four weeks the condition relapsed. Towards the end of January, although the dose of iodine had been reduced to ♏ iv, the heart rate and the basal metabolic rate were again falling, but not so satisfactorily as in December. The body weight had, however, increased continuously since the commencement of the iodine treatment.

CASE VII.

A married woman, aged 43, who had noticed prominence of the eyes and shortness of breath on exertion for eighteen months, disturbed sleep for eight months, and severe weakness and tremor for four months. She was admitted in December, 1923, with a heart rate of 100, and basal metabolic rate of +46 per cent. Exophthalmos and all the classical eye signs were present. The skin was moist and flushed readily. Tremor was not marked. The enlargement of the thyroid gland was slight but symmetrical, and no bruit or thrill was noted. Under iodine, ♏ vj daily, the basal metabolic rate fell to +22 per cent. and the heart rate to 82, but the improvement was not maintained and no gain in weight resulted.

In this case there were serious family troubles owing to the patient's absence from home, and it was soon seen that no further benefit would be derived from hospital treatment. The improvement that results from iodine seems to have a feeble hold, for in this case worries, in Case VI excitement, in Case V tonsillitis, and in Cases I, II, and III less strict conditions of rest, all caused it to disappear to a greater or less extent.

The following case is given in detail, not so much because it illustrates a typical action of iodine, but because the effect of the iodine was so striking, though unusual.

CASE VIII.

A woman, aged 31, who had had increasing symptoms of exophthalmic goitre for one year, but who was found after admission to have a staphylococcal septicaemia in addition. She was given iodine for four days, and received ♏ lxxv in all. At the end of the four days the heart rate, which had been 116, had fallen to 60, and after continuing at that level for two more days rose again rapidly to 100. No other cause for the fall in rate could be discovered, and no disturbance of cardiac mechanism was suspected, the heart's action being regular throughout the fall and subsequent rise of rate.

This case appears worth recording if only to show that iodine is capable of profoundly influencing certain functions of the organism in disease. Of the remaining 16 cases, in 9 there was evidence of beneficial action similar to that seen in the foregoing cases. In these the observations on the basal metabolic rate were not so complete, or other factors disturbed the action, so that they do not present such a clear picture. In others, again, a sufficient control period without iodine was not present. Among these 9 cases are examples illustrating further some of the points already brought out. It was frequently seen that on the patient being allowed up, and more particularly on leaving hospital, the condition relapsed in spite of continued iodine administration. On the other hand, such patients are almost unanimous in stating that they feel better when on iodine. In a man aged 40 the subjective distress and nervousness improved strikingly, and the heart rate was slowed, but there was little or no effect on the basal metabolic rate. In a woman aged 44 the improvement in the general condition and basal metabolic rate was striking, but persistent auricular fibrillation set in, and the picture of exophthalmic goitre became overshadowed by that of circulatory insufficiency. Two cases in whom constipation had been troublesome to manage developed a desirable looseness of the bowels after commencing iodine, and the ward sister states that in other cases a similar action was noticeable, though to a less extent.

In 5 cases no beneficial action could be noted, but in 3 of them coincident infections may account for this. In one, septic teeth and chronic appendicitis, in another tonsillitis, and in a third bronchopneumonia, may have prevented the evidence of iodine action being seen. In none of the five was any harmful effect discoverable. In 2 cases undesirable effects were prominent. In one, a woman aged 20, tonsillectomy and rest brought about considerable improvement, but the commencement of iodine in doses of ♏ xxx daily, and later ♏ lx daily, caused an increase in the severity of the symptoms—the thyroid gland became extremely hard, and troublesome diarrhoea appeared. The basal metabolic rate had before treatment with iodine been +20 per cent., and after the diarrhoea set in it rose to +90 per cent. The condition subsided somewhat on stopping the administration of the iodine, and partial thyroidectomy was performed. In the other case, that of a woman aged 27, considerable improvement occurred in the ward after tonsillectomy, and further improvement was seen on commencing iodine in doses of ♏ xl, and later of ♏ lx and ♏ clxxx; but on leaving hospital on this last dose the thyroid gland became hard and appeared increased in size, and distressing palpitations appeared.

Regulation of Dosage.

It will be seen that in those two cases in which harm resulted much larger doses than those usually given were employed. They were in the earlier days of our observation, and because of the very promising results obtained with the smaller doses, the larger doses were the result of an attempt to obtain even better results. As a result of experience we soon learnt that doses of ♏ ix and ♏ xv daily gave as good results as could be obtained with larger doses. If, however, such doses were continued for long, after a

varying number of weeks the thyroid gland would become gradually harder, and distressing symptoms of palpitations, pressure in the neck, choking sensation, and occasionally increased exophthalmos and tachycardia, would develop. After obtaining a decided benefit on daily doses of ♏ ix or ♏ xv, and no further improvement occurring, the dose is reduced to ♏ vj or ♏ iij, and the patient can continue on such doses almost indefinitely. In each case repeated examination is necessary to ascertain the optimum dose to maintain the improved condition. On the appearance of a rise in heart rate, or of the gland becoming harder, all iodine is omitted for one or two weeks and then recommenced on a lower dose.

Therapeutic Value.

In spite of such careful regulation of dosage, the ultimate results have not been as good as might be expected, for, as seen in the cases detailed, worry, excitement, and infections can undo all the benefit derived from the iodine. I think, further, that iodine cannot withstand the consequences that the daily contact with the world, either at work or at home, has on patients with exophthalmic goitre, and that so far it is of limited value in the medical treatment of the condition. If the patient can afford to lead a sheltered life it is a valuable addition to the other means at our disposal for managing a condition that in the majority of cases gradually subsides in time. But its very striking action has a much greater value than this, if it is combined wth surgical treatment. The great majority of cases of exophthalmic goitre cannot afford to lead a sheltered life, and for them the only treatment that holds out the hope of a recovery sufficient to allow of successful competition in the struggle for a living wage is by means of surgery. Iodine treatment can so improve the patient's condition, even if temporarily, that surgical treatment by partial thyroidectomy becomes much simpler and much safer.

Discussion.

In the last few months several reports on the action of iodine in exophthalmic goitre have been published. Plummer and Boothby,[12] reporting from the Mayo Clinic, base their deductions on their experiences with 600 cases in all, of which 43 were studied carefully. They administered the iodine in the form of Lugol's solution, which contains 5 per cent. iodine in 10 per cent. potassium iodide. In their summary they state that "it seems probable that approximately two-thirds of the patients with exophthalmic goitre will be greatly benefited, one-fourth will be slightly benefited, the remainder—or about one patient in twenty—will not be benefited." They consider that there is practically no probability of iodine doing any harm. In their recorded observations there is no mention of any attempt to use the larger doses which we employed at the outset, and which I think are capable of doing harm, and since their cases appear to have been in course of preparation for surgical treatment it is unlikely that they ever observed the action of even small doses of iodine over a prolonged period. Our results point strongly to the possibilities of harm even with such small doses as ♏ vj of the 10 per cent. tincture, if continued for several months or weeks. Plummer and Boothby employ doses of ten drops of Lugol's solution daily for the average case, and may in urgent cases give as much as thirty drops for a few days only.

Mason,[13] reporting from Montreal, also uses Lugol's solution, and his experience is the same as that of Plummer and Boothby. He emphasizes the immediate relapse of the clinical condition on stopping iodine.

Jagic and Spengler[14] used a 5 per cent. solution of sodium iodide in the treatment of various types of goitre, and they report that, in 5 cases with symptoms of exophthalmic goitre, 2 were improved, 2 others relapsed after a preliminary improvement, and the fifth became worse. They advocate the use of eight drops of the 5 per cent. solution of sodium iodide, three times a day, in cases of goitre with thyrotoxic symptoms.

Wahlberg[15] used a 5 per cent. solution of potassium iodide in maximum doses of fifteen drops a day. In 2 cases out of 8 he found that after a preliminary improvement the disease became worse. The ultimate results on the whole were not satisfactory, and he believes that the problem is largely one of dosage, and that the initial benefit is destroyed by a cumulative action of the iodine.

Starr, Walcott, Segall, and Means[16] followed the lines reported by Plummer and Boothby, and, using Lugol's solution in the same doses, confirmed their results. They also noted the temporary character of the improvement, and use the term "iodine remission" to describe the benefits obtained, and also noted that in some cases no effect is observable.

Since the cause of exophthalmic goitre is at present unknown, it is not easy to decide on the meaning of this action of iodine. The recent experimental work of Marine[17] on the result of damage to the cortex of the adrenal bodies is of interest in this connexion. He found that such damage in rabbits causes an increased heat production—that is, a rise of basal metabolic rate—and a loss of iodine in the thyroid gland. If the thyroid had been removed previously, this rise of heat production did not occur. Clinically these animals, in whom the adrenal cortex was damaged, showed features resembling those seen in exophthalmic goitre—namely, asthenia, exhaustion, myocardial damage, and loss of nutrition. These results appear to support the prevalent ideas that in exophthalmic goitre other organs of internal secretion besides the thyroid are essentially, and possibly primarily, involved.

It is tempting to try to bring exophthalmic goitre into line with the simpler goitres as an iodine deficiency disease, and to account for the different types of goitre by differences in the response of the thyroid and of the body generally to iodine deficiency. The results of iodine treatment in exophthalmic goitre, however, justify merely the view that in this disease there is an iodine deficiency relative to the needs of the body. It may be that the primary disturbance, whatever that may be, involves the thyroid gland in addition to other organs, and that the thyroid is stimulated to overactivity. This overactivity, by greatly increasing the need for iodine, would then result in a relative iodine deficiency. On this hypothesis, the administration of iodine would be of value in the treatment of what is merely a symptom, while it would have little if any effect in altering the course of the disease, and the administration of large doses would result in harmful effects, just as in the treatment of simple goitre.

Summary.

1. The effect of iodine administration has been studied in twenty-four cases of exophthalmic goitre.
2. Iodine can bring about a lowering of basal metabolic rate, and of heart rate, and an increase of body weight, with a striking improvement in the general condition of the patient.
3. The improvement obtained with iodine does not as a rule persist.
4. The optimum dose at the commencement of the treatment appears to be about ♏ xv of a 10 per cent. solution in alcohol, but this dosage cannot as a rule be maintained more than a few days or weeks. If the administration is stopped the condition immediately relapses. For prolonged treatment the dose should be lowered as soon as the initial improvement has taken place, and the administration continued with doses of ♏ iij to ♏ vj daily. The dosage must be carefully regulated according to the condition of the patient.
5. Increasing hardness of the thyroid gland is an indication for a smaller dosage.
6. The condition of the patient may be made worse, instead of better, if too large a dosage is employed.

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An Address
ON
'CHRONIC MASTITIS' AS A TERM:
ITS FALLACY AND THE DANGER OF ITS CLINICAL SIGNS.*

BY

SIR G. LENTHAL CHEATLE, K.C.B., C.V.O., F.R.C.S.,
SURGEON AND LECTURER IN SURGERY, KING'S COLLEGE HOSPITAL.

(With Special Plate.)

THE term "chronic mastitis" is fallacious because it does not allude, as its name implies, to an inflammation of the breast, and also because the clinical signs universally considered to be connected with it mask many and various states of breast hyperplasia. It is a dangerous diagnosis, because these clinical signs hide carcinoma in its earliest stages, advanced carcinoma in rarer examples, and many other states of epithelial hyperplasia.

I believe the want of a proper recognition of these facts has led to the present confusion of opinion as to whether so-called "chronic mastitis" is or is not a prelude to carcinoma. Instead of saying that it is a prelude to carcinoma, I would prefer, to-day, to put the matter thus: The clinical signs on which its diagnosis depends include early and, in rarer instances, late carcinoma, duct papillomata (with which carcinoma is so often associated), as well as many other states of hyperplasia. Hence the danger and inaccuracy that lurk behind these clinical signs.

As a result of my paper I may be accused of demonstrating errors of diagnosis instead of proving that the clinical signs which indicate "chronic mastitis" are applied to various and some dangerous pathological changes. The accusation would be wrong, for the whole profession, including myself, is being misled constantly by these clinical signs, which are totally insufficient to enable any of us to be sure what is happening in breasts that exhibit them. There can be no doubt that the issues are so important that we ought to know precisely what is occurring in these breasts. Let me go more fully into these points.

I have inferred that inflammation and hyperplasia are different processes—an inference that clearly demands that I should say what I mean by inflammation, and by chronic inflammation in particular. Pathologists agree that what is now called "chronic inflammation" is quite a different process from acute inflammation. My conception of acute inflammation is as follows:

Blood corpuscles are aggregated in the blood vessels. There is dilatation of the arteries (commonly preceded by a brief period of contraction), giving rise to more free flow through the capillaries. This arterial dilatation is a purely nervous act that has been proved by Dr. Ninian Bruce to be due to an axon reflex. Other changes are that red and white corpuscles are prone to stick to one another and to the blood vessel wall, and the circulation becomes slow. There is an exudation of plasma, and an exodus of blood corpuscles from the interior of the blood vessels into parts outside them. Also, there is loss of function in an inflamed part; for example, the loss of movements of the ciliae of ciliated epithelium (Lister). Lord Lister also stated that the lost movements of the granules in the pigment cells in the frog were another sign of lost function in the inflamed area. But our present knowledge renders pigmentation a much more complicated subject than it was in his time, and so much new work is in progress on this subject and that of acute inflammation that the pigmentary changes may prove, like the arteries, to be due to disturbed function and not lost function.

I have enumerated the changes that are classed together under the term "acute inflammation"; to them, when they last a long time and are less intense in degree, I assign the term "chronic inflammation." That is my conception of chronic inflammation, and I do not apply that term to any other tissue changes. The knowledge that has accumulated of growth, and of the effects of irritation applied directly to cells, has become so important that Burdon-Sanderson's definition of inflammation (made in 1870) can no longer be accepted as true. He said: "Inflammation is the succession of changes which occur in a living tissue when it is injured, providing the injury is not of such a degree as to at once destroy its structure and vitality." That definition includes too much. In it there is no definition of injury, and there is no limitation of time, nor to the "succession of changes" that occur in tissues as a result of stimulation or irritation.

You may object and say that "Inflammation induces increased blood supply, which induces hyperplasia, and if that be so, therefore inflammation is at the bottom of hyperplasia." My reply would be that increase of blood may be essential to an increase of growth, but I do not admit for a moment that it can induce hyperplasia. I know that Hunter performed a classical experiment upon cocks, by which he intended to show that an increase of blood supply does induce an increase of growth. He transplanted their spurs into their combs, and an enormous growth of the spurs ensued.

In this experiment Hunter assumed many things, among which were that a cock's comb was a more vascular medium than the cock's leg, and that the subsequent excessive growth of the transplanted spur was due to the increase of blood supply it received.

I have repeated Hunter's experiment, and, in addition to transplanting spurs into combs, I placed them subcutaneously in the backs of the birds. The spurs seemed to me to grow equally big in both places. I had to cut short the lives of my birds because their vocal accomplishments disturbed the amenities of King's College and most of the inhabitants in the neighbouring Strand. I came to the following conclusions:

1. That the combs merely consist of a soft almost avascular gelatinous kind of substance that did not bleed at all on incision, and often there was smart haemorrhage during the removal of the spurs from the legs. The natural blood supply of the spurs seemed greater than that of the combs.

2. That the increased growth of the spurs was due to the want of wear and tear to which they are not subjected in their abnormal situations. In the days of cock-fighting spurs were protected by a kind of thimble which allowed them to grow into formidable weapons of offence; the thimble did not increase their blood supply—it only protected them from the wear and tear of life.

3. That there are other more recently acquired fundamental facts relating to growth that are also involved in this matter, but into which I need not enter.

The formation of keloids that occurs in the scars (and sometimes only in parts of scars) of only certain individuals is an obvious example of hyperplasia, with which the mysteries of growth are more concerned than those of inflammation, with which it is now classified. The healing of a wound is not a process of inflammation, but one of regulated and controlled hyperplasia.

Further, I have pointed out recently that the connective tissue around fibro-adenomata, in their early stages of growth, is in a state of a diffuse hyperplasia that is identical in structure with that of the tumour. The area of this diffuse hyperplasia resembles what is now assumed to be "chronic mastitis," but the altering tissues in the neighbourhood of the fibro-adenomata are really taking part in the formation of the tumours, and are not suffering from an inflammatory process. (See Figs. 1 and 2.)

The truth of the matter is that now we know the problems relating to growth are much more complicated than they were supposed to be in the times of Hunter, and later of Burdon-Sanderson. Although our knowledge of the problems concerning growth is elementary, yet it is great enough to impel us to consider all states of hyperplasia in terms of growth and not in terms of inflammation.

This conception is of immense practical importance when considering pathological changes of the breast in relation to their clinical signs. As an example of this point, I will show you later on a breast that was diagnosed as "chronic mastitis" by one of the ablest clinicians of our time. Besides containing many different states of hyperplasia and cysts (the existence of which he knew), it also contained, totally unsuspected, a fibro-adenoma, a duct papilloma, and carcinoma—all of which were discovered incidentally on

*The annual address delivered, November 27th, 1924, before the Sunderland Division of the British Medical Association.

making whole sections of this gland. With the exception of generalized nodularity and pain, there were no clinical signs to indicate the presence of any of these lesions. Discoveries such as this are not uncommon when breasts are examined by cutting whole sections for microscopic examination. Our knowledge of breasts cannot be accurate until their examination by means of whole microscopical sections is adopted universally.

I would go still further, and I would apply the term "hyperplasia" instead of "chronic inflammation" to other pathological states. Take, for example, the structure of a tubercle in tuberculosis. I would much prefer it were called a tuberculous hyperplasia and not "chronic inflammation." The lesion is one of pure hyperplasia. There is a giant cell surrounded by epithelioid cells, which are encompassed by an accumulation of lymphocytes, and an old tubercle is surrounded by newly formed fibrous tissue. You may say in surprise and indignation that surely lymphocytes are cells that belong essentially to "chronic inflammation." As a fact their presence is due to the laws that govern hyperplasia. You will remember that Carrel, in the famous address that he delivered before this Association, pointed out that lymphocytes and fibrous tissue cells respectively can grow and multiply *in vitro*.

There can be no doubt that acute inflammation and hyperplasia, different processes as they are, can occur at the same time. As an example, consider what is occurring in acute suppuration. Acute inflammation is present, and within the first hour it may be present alone. After two or three hours hyperplasia of tissue begins outside the centre of disease. Again, can there be a more wonderful state of hyperplasia than that which is occurring in the bone marrow, where the polynuclear leucocytes of suppuration are being manufactured in an enormous number? Nobody has suggested yet that the bone marrow is inflamed in this process.

You may tell me that tuberculous knees are hotter than normal joints, and that sign must always be one of the classical indications of inflammation. I agree it is, and chronic inflammation, as I have defined it, is also present when heat is manifest; but when proper physiological rest is applied to them the increased heat disappears, although tuberculous hyperplasia be still present. I may here point out that a breast suffering from what is now called "chronic mastitis" is usually of normal temperature.

Lastly, when I describe one of the types of desquamative hyperplasia of epithelium, it will be seen that colostrum corpuscles are being formed only in certain ducts of the breast, even when patients are virgins past their menstrual life. As the lesion is local and not affecting the whole breast, the result must be a combined effort of physiological and pathological processes that are operating locally. Hence much more complicated principles are concerned than merely those of inflammation.

I never use the term "chronic mastitis." I say the state is, as may be, either a local or a diffuse hyperplasia of the breast tissues respectively. Sir Humphry Rolleston, at my request, kindly suggested to me the term "mazoplasia."

My paper will be in vain if I cannot make you realize, when you are confronted by a breast which you now imagine to be one of "chronic mastitis," that you are in the presence of intricate problems of hyperplasia, that the clinical signs upon which you depend for the diagnosis of "chronic mastitis" do not convey an accurate conception of what is occurring in the breast before you, and that the life of the patient depends on the accuracy of your conclusions. In every breast that I examine clinically and microscopically my investigation is influenced absolutely by this dominating principle of hyperplasia and in what variety it may be present.

I proceed to give you examples of pathological changes that are included in this nebulous diagnosis of "chronic mastitis," and from them I trust you will see how inaccurate is the term, and how terribly anxious we ought to be when the only clinical signs to guide us are those of nodularity of the breasts and pain. I shall exclude all considerations of decided solitary tumours. The states of hyperplasia I shall describe occur, with some exceptions, mainly in the peripheral ducts, and also in some of the acini related to them. The larger ducts may less commonly share in these processes, even as far as the nipple. This statement does not exclude the possibility of the hyperplasia occurring in the nipple itself, for it can be filled with secreting acini during lactation to such an extent that the ducts appear to be anatomically of minor importance. I will show that certain pathological changes are very often limited in site to the peripheral ducts and some acini connected with them. This limitation is common to various forms of epithelial and connective tissue hyperplasias, a fact that insists upon the consideration whether these processes are consecutive stages leading from one to the other should the action of the toxic agent be continued.

In order to make myself clear it is essential that I should draw your attention to the histological anatomy of the ducts and acini. Beneath the epithelial lining of the structures there is a layer of unstriated muscle fibres, which is separated from the elastica by a thin layer of a few bipolar cells loosely connected together by a delicate fibrillous tissue. The elastica is mainly limited to the ducts, and only occasionally surrounds acini; more rarely it surrounds a lobule. The delicate cellular fibrillous tissue that lies beneath the layer of unstriated muscle is continued around the acini, whether the elastica is continued around them or not. Outside the ducts and acini there is a layer of fibrous tissue that is in close contact with these structures. It is less dense in character than the supporting fibrous tissue of the breast, and forms the intralobular and pericanalicular fibrous tissue. This layer has almost a physiological connexion with the secreting elements. It often disappears in the breasts of virgins after about 35 years of age, so that the atrophied glandular elements are left in direct contact with the supporting fibrous tissue of the breast.

It is important to state that it is rare to find any type of connective tissue hyperplasia without a corresponding hyperplasia of the epithelium in the ducts or acini concerned; hence its presence may be assumed during the description of connective tissue hyperplasia. "Hyperplasia intra-elastica" is the term I apply to connective tissue hyperplasia that occurs internal to the elastica; "hyperplasia elastica" I apply to the enormous massive hyperplasia that sometimes occurs in the elastica itself; and when hyperplasia occurs in the pericanalicular and intralobular connective tissue, I term it "hyperplasia extra-elastica."

There is one more preliminary point. The best position in which to place a patient for the clinical examination of the breast is as follows: She should lie on a pillow that is placed immediately behind her chest. This position throws forward the breasts, the arms fall downwards with the elbows resting on the couch, and expose the axillae for clinical examination. The breasts and axillae should be examined, and the ampullae, ducts, and acini separately palpated.

I divide the pathological changes I am about to describe into three classes:

I. Desquamative epithelial hyperplasia.
II. Non-desquamative epithelial hyperplasia.
III. In which the epithelial hyperplasia may be desquamative and non-desquamative in the same specimens, and in which the changes in the connective tissues appear to assume greater importance than the changes in the epithelium.

I must firmly impress upon the reader that the processes I describe often overlap each other to such an extent that I can show whole sections of breasts that contain in each respectively fibro-adenoma, duct papilloma, carcinoma, hyperplasia intra-elastica, hyperplasia elastica, hyperplasia extra-elastica, and cysts, as well as other types of epithelial hyperplasia.

CLASS I.—DESQUAMATIVE EPITHELIAL HYPERPLASIA.

This class consists of two types—A and B.

Type A.

Pathology.—In this type there is more commonly a generalized desquamative hyperplasia of epithelium, mainly in the peripheral ducts and also in some of the acini connected with them. It may, however, become

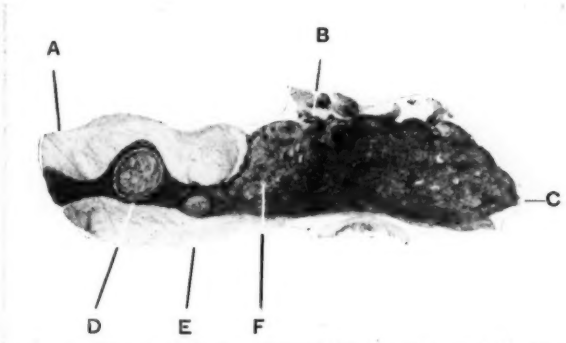


FIG. 1.—A segment of breast removed from a girl aged 16 years. The fibro-adenoma D called for the operation, and irregularity of the breast between A and B was the only palpable clinical sign of a more generalized pathological state. This microscopical whole section of the parts removed shows a distinct macroscopical appearance of the breast between the letters A, B, and that part between the letters B, C, where the breast is normal. At E there is an unsuspected small fibro-adenoma. From F Fig. 2 is drawn. (Natural size.)

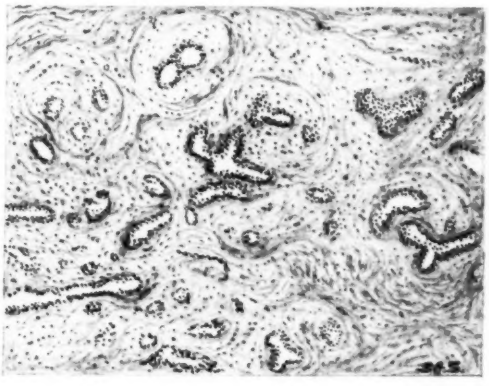


FIG. 2.—A low power magnification of the tissue changes occurring at F in Fig. 1. There is a marked extra-elastica hyperplasia, and it is a diffused state of the same changes that are occurring in a localized form in the two fibro-adenomata at D and E, Fig. 1.

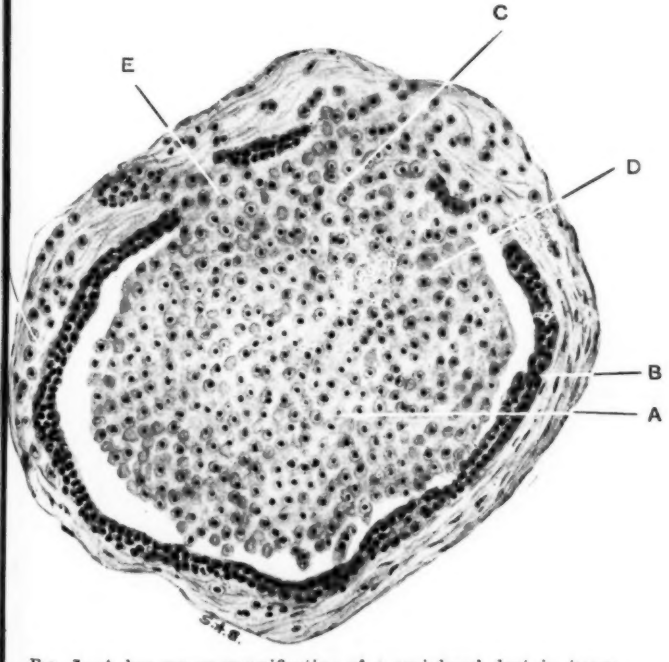


FIG. 3.—A low power magnification of a peripheral duct in transverse section. The desquamative hyperplasia belongs to Type B of this article. The large colostrum-like cells A are distending the duct wall B at E, C, D; the constituents of the wall have been parted by the expanding pressure within the duct, and the cell contents are being pushed out into the surrounding tissues F.

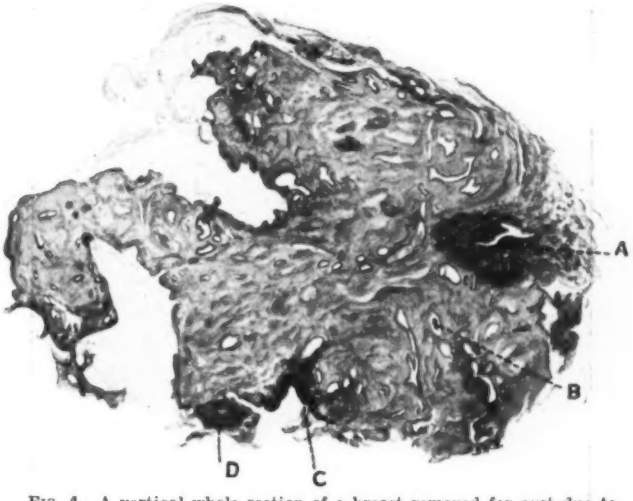


FIG. 4.—A vertical whole section of a breast removed for cyst due to "chronic mastitis." At A, C, D, there are three foci of infiltrating carcinoma, and at B there is a multiradicular papilloma in a duct cyst. (Natural size.)

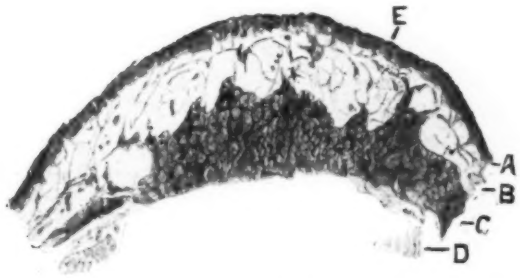


FIG. 5.—Horizontal whole section of breast. The shape is that of a normal breast. The structure of the breast is replaced by diffuse carcinoma, C. A, skin; B, subcutaneous tissue; D, remains of pectoralis major; and E points to one of the infiltrated ligamenta suspensoria of Sir Astley Cooper. (Natural size.)

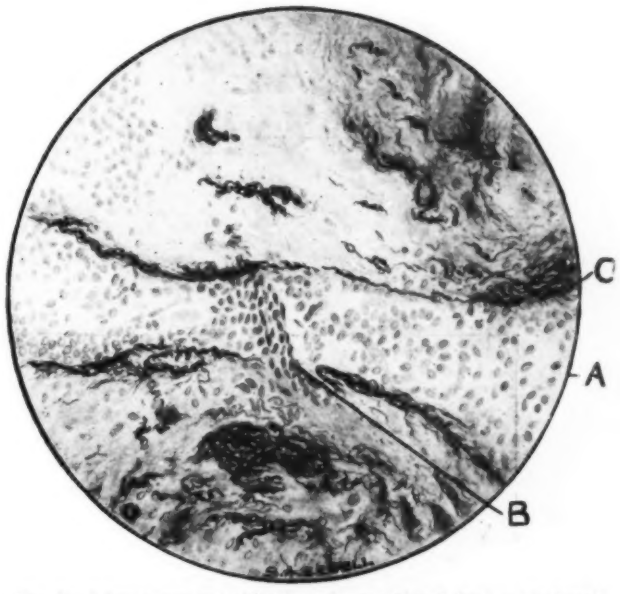


FIG. 6.—A low power magnification of a peripheral duct cut in longitudinal section. C, elastica; A, carcinoma cells filling the duct; and at B carcinoma cells are forcing their ways from the inside to the outside of the duct.

W. A. H. McKERROW: DORSO-LUMBAR DISLOCATION OF THE SPINE REDUCED BY OPERATION.

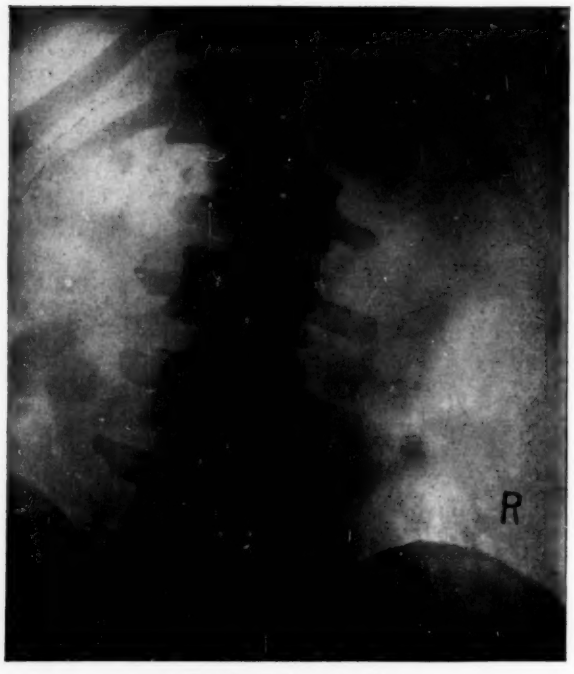


FIG. 1.—Before operation.

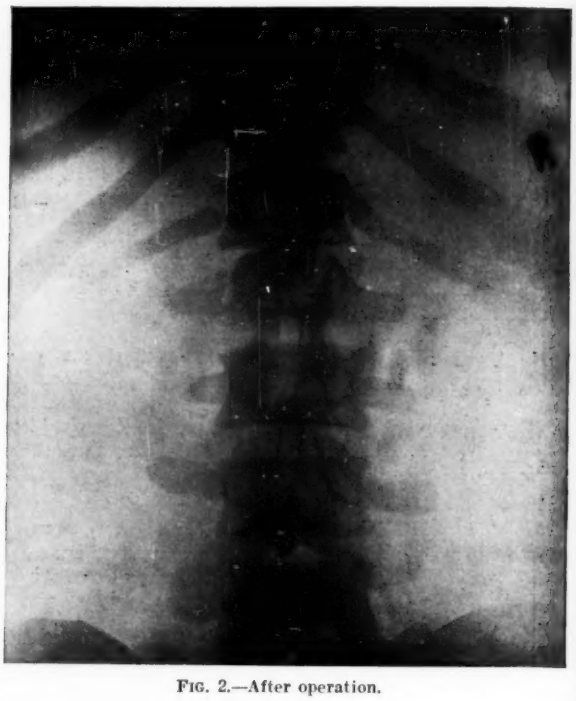


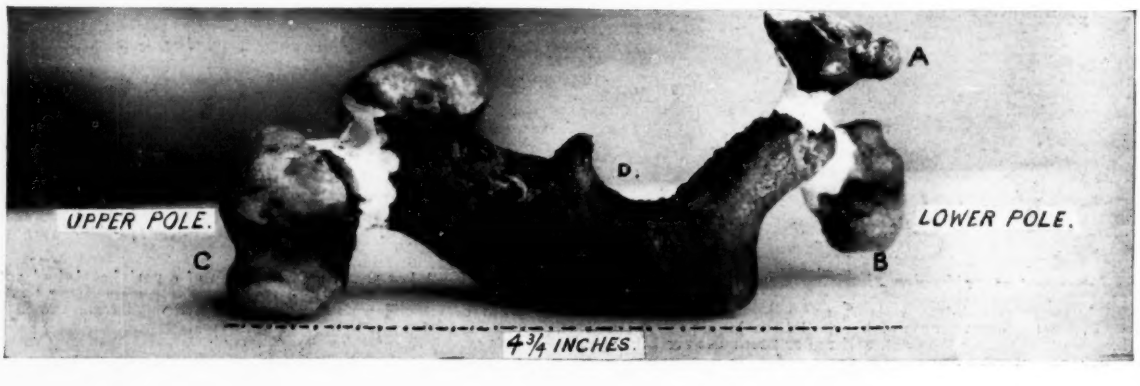
FIG. 2.—After operation.

J. G. WILLMORE AND M. DOUGLAS: SUPRARENAL TUMOUR, WITH DEGENERATION OF THE RETICULO-ENDOTHELIAL SYSTEM.

FIG. 1.

FIG. 2.

W. EVERETT: PERFORATION OF THE KIDNEY BY A LARGE BRANCHED CALCULUS.



more obvious clinically at one part or more than one part. All the affected structures are distended by this hyperplasia. The epithelium is proliferating universally from the surfaces of these structures. The cells thrown off are small, irregularly shaped, and desiccated, and are quite distinct in appearance from those thrown off by Type B. Hyperplasia extra-elastica is commonly in association, in which accumulations of lymphocytes are often present. The presence of lymphocytes is by no means an essential feature. Although this state affects most of the gland, there are parts which have not undergone these changes. This state of general epithelial hyperplasia is one of the early stages of cyst formation, Type B being the other. Also, slightly enlarged lymphatic glands sometimes occur in the axilla. Microscopical examination of these lymphatic glands reveals in their centres a diffuse hyperplasia of endothelium to which their enlargement is due. I have seen the same endothelial hyperplasia occurring in lymphatic glands that were secondary to carcinoma of the breast, and secondary to apparently aseptic operations upon animals.

Clinical Signs.—On palpation the whole breast is studded by multiple nodules which vary in size, but are seldom larger than a dried pea. The ducts are tortuous, and ampullae can often be felt enlarged. There is no discharge from the nipple. Occasionally the enlarged lymphatic gland may be felt in the axilla. This state attacks married and unmarried women from 30 years of age onwards. It may last for months or years. The general hyperplasia is painful, sometimes very painful. The pain may or may not be worse at the periods. Usually it has no relation to them. Pain is worse on palpation and when the breast is jarred. Pain is due to the distension of ducts and acini. The clinical signs appear local when the pathological changes are more advanced in one part than in other parts. When the changes appear to be local on clinical examination, the only way to be certain of the diagnosis between it and early carcinoma is to cut whole sections of the part removed for examination. How far is this practicable? This investigation is all the more essential when the affected parts are in the upper and outer segment of the breast, where the skin is often normally attached to the underlying breast.

Type B.

Pathology.—This type usually affects the peripheral parts of the ducts only, or acini only, or peripheral ducts and acini. It may affect mainly one part of a breast, or many quite isolated parts, or may complicate other states of hyperplasia. It attacks married and unmarried women from 30 onwards. As the processes in the ducts and acini are somewhat different, I will describe them separately.

Ducts.—In the early stages, what is seen is this: At four or five different spots in the circumference of the ducts the epithelial cells become long and feathery, undergo proliferation, and throw off large and swollen cells, and stain badly with a small degenerated nucleus. In other cells of the same type the protoplasm may stain badly, but the nucleus stains well. The various stages in the development of these large cells from the feathery cells can be demonstrated with certainty. In the later stages the duct is distended by these large desquamated cells and no surface feathery cells can be seen. One type of cysts arises from this type of epithelial proliferation in the ducts. I will show you in a transverse section of a duct what may happen when it becomes overdistended by this type of hyperplasia. You will see that mechanical rupture of its wall has occurred, and the big swollen cells are being pushed into the parts surrounding it (Fig. 3). In another specimen I saw a large collection of these particular cells lying loose, as it were, in the supporting fibrous tissue of the breast, and I wondered how they had got there. The explanation lies in this very interesting little discovery.

Before passing on to describe the changes in the acini, I would like to say this: The large swollen desquamated cells of this type resemble colostrum corpuscles. I am confident they are colostrum corpuscles. If so, the origin of the latter in breasts of all ages and stages is clearly from the walls of the ducts and not from the acini, for in all my specimens these cells can be traced in all stages of formation as they arise direct from the duct cells.

Acini.—The epithelial cells lining the acini become long and feathery, but I have not seen among them the large colostrum cells that occur in the ducts. Eventually the cells lose their feathery type and become more cubical and spheroidal, and sometimes form columns consisting of four or five cells that grow into the interior of the dilated acinus. Often small, intracystic papillomata of delicate structure are formed. Acinous cysts thus formed may reach a large size.

I consider that the pathological changes in Types A and B are proemial and are preparing the way for many sequences—for example, cysts, stagnation of contents in cysts, papillomata, and even carcinoma.

Cystic Breasts.

Pathology.—The multiple cysts are a result of the changes described above in Types A and B. Cysts may be general throughout the breast, or more or less local. The smallest cysts, which are microscopical, still exhibit desquamative hyperplasia of epithelium of the type to which they belong. The larger cysts are lined by a layer, sometimes more than one layer, of more or less degenerated epithelium. Whole microscopical sections of these glands form an instructive object of study. I will give five examples. In the first, the breast is riddled with cysts of various sizes. There is no evidence of any intracystic growth. There are points in it where hyperplasia extra-elastica has become so marked as to form small fibro-adenomata. The second contains many cysts, in only one of which I was able to discover a papilloma, which happened to be of the rare uniradicular type. The cyst containing this papilloma was a small dilated duct. The third multiple cystic state (Fig. 4) exhibits one small cyst in which there is a duct papilloma of the multiradicular type. In three separate parts of the breast there are foci of carcinoma in which epithelial cells are infiltrating the fibrous tissue of the gland and fat in their immediate neighbourhood. There were no clinical signs to indicate the presence of these complications, which were only incidentally discovered on microscopical examination of whole sections. The breast was removed upon a diagnosis of "cysts due to 'chronic mastitis.'" Fourth, there are other cystic breasts in which papillomata commonly originate. There is a fifth and more rare state in which carcinoma is incidentally discovered in large cysts when whole sections have been made.

I have the breasts of five separate patients which show remarkable and surprising pathological changes. On making whole sections of these breasts I found totally unsuspected carcinoma within large cysts. The cysts contained clear fluid and their walls were soft. What makes these observations so important is that medical men are apt to conclude that large cysts are never dangerous. Moreover, when they tap these cysts, they are content to regard them as simple when they extract a clear fluid and discover that their walls and surrounding parts of the breast are soft. Although I agree that large cysts, as a rule, are not dangerous, I do not consider that the clearness of the fluid, and the softness of surrounding tissue, are indications of complete safety. I am convinced that small cysts are liable to be dangerous and that carcinoma commonly may begin either in them or by a malignant small cyst formation, which I will describe later on.

Clinical Signs.—Over the whole breast multiple nodules occur, and vary from the size of a pea to that of an ordinary hen's egg. The larger nodules fluctuate definitely. Smaller ones are so decidedly elastic that no doubt could be entertained of their fluid contents. It is impossible to declare on clinical signs alone that there are no intracystic growths present. The fluid nature of their contents obscures the presence of internal growth. As a rule, on the formation of cysts pain disappears and is substituted by a feeling of general discomfort. Generally there is no discharge from the nipple, though gentle pressure on the breast may induce a clear or greenish discharge from the nipple. Lymphatic glands are not as a rule enlarged. When present, they exhibit endothelial hyperplasia, unless one of the cysts contains a carcinoma, when the gland might contain epithelial cells. Hence in doubtful states it would be well to remove the enlarged lymphatic gland and determine its contents by microscopical examination.

CLASS II.—NON-DESQUAMATIVE EPITHELIAL HYPERPLASIA.

A. *Diffuse Carcinoma.*

Pathology.—One would consider that advanced diffuse carcinoma could never be diagnosed as "chronic mastitis," but such is the fact. I will describe a breast of one patient, and the breasts of another.

Turning to the first, the breast appears of normal shape and size (Fig. 5). Curiously enough, there is no sign of breast tissue to be seen. The site of the normal breast is entirely occupied by a diffuse carcinoma. Epithelial cells have an alveolar arrangement. They completely fill spaces divided from each other by a thin network of fibrous tissue. The spaces vary in size, and are irregular in shape. There is no solitary lump. At many points the bases of the ligamenta suspensoria are attacked by carcinoma. Their attachment to the skin gave rise to the general nodularity which led to the diagnosis of "chronic mastitis." Lymphatic glands in the axilla contained carcinoma, although clinically they could not be distinguished.

In the second patient both breasts were affected by diffuse carcinoma. There were no solitary lumps. Carcinoma had invaded the bases of the ligamenta suspensoria, which gave rise to the general nodularity of the breasts. The pathological states of these breasts were the same and in no way resembled the remarkable appearances seen in the breast of the first patient. There was a primary carcinoma in each breast, which had spread in the usual method. Parts of the gland could be easily demonstrated in different parts of these breasts. Lymphatic glands in the axillae contained carcinoma, although they could not be distinguished clinically.

Clinical Signs.—The shape and the size of breasts belonging to this type remain unaltered. Careful palpation reveals diffuse puckering of the skin, general nodularity, and the absence of a decided solitary tumour. The breast may move freely over the pectoral fascia, or become fixed to it. Lymphatic glands in the axillae contain carcinoma, although their detection may not be possible clinically. The diagnosis is often rendered difficult by the fact that the patients may be fat. The two patients to whom I have referred were under the care of highly experienced observers, who, although they were always worried about these women, kept them under observation for eight months and eighteen months respectively. Doctors and patients were convinced that the states of the glands had not altered during these times.

B. *Local Carcinoma.*

Pathology.—I am about to describe what I believe to be a common method by which carcinoma begins. A localized collection of peripheral ducts and acini are distended by well stained malignant-looking cells. After careful search made of whole sections of a breast, small definite areas can be seen in which epithelial cells of precisely the same appearances have invaded the surrounding tissue. The distended ducts and acini in parts are more or less cystic and contain a clear fluid. The duct cysts may contain multiradicular papillomata. The acinous cysts may contain sessile growths, which project into the interior. I have not yet seen an early stage of carcinoma in which the peripheral duct or ducts were not implicated in the process. The epithelium of these cysts is identical in appearance with those that have invaded the surrounding tissue. It may be that the epithelial cells which have undergone hyperplasia may exist within the ducts and acini for a considerable period before the invasion of the surrounding parts occurs. I am led to believe, by what I have shown you in ducts and other breasts, that the invasion may be the result of accidental rupture of the walls of the small ducts or acini, and because the cells are malignant and capable of proliferation they continue to grow and spread to other parts of the body. Should the epithelial invasion of surrounding breast structures occur in the middle of the lesion, the ligamenta suspensoria are not affected and enable the diseased area to be pushed about without puckering the skin. The tumour may reach a large size before puckering of the skin can be demonstrated. I am sorry to say that breasts containing the early stages of this type are nearly always diagnosed as "chronic mastitis." Carcinoma may begin and spread also in a pre-existing cyst small in size.

Clinical Signs.—There is usually a history of pain, yet pain may be absent at the time of examination. When present it is made worse on palpation. There is nodularity of the affected area. There is no puckering of the skin in the early stages. It is certain to appear later, but the disease may be advanced beforehand. Enlargement of carcinomatous lymphatic glands is usual except in the earliest stages of carcinoma, when it is limited within ducts and acini.

C. *A Diffuse Non-desquamative Hyperplasia of Epithelium.*

Pathology.—There is a type of non-desquamative hyperplasia of epithelium which can affect only one peripheral duct and some of its acini and sometimes none of its acini. In other patients a non-desquamative hyperplasia of epithelium somewhat akin to this state can affect whole lengths of ducts secondary to Paget's disease of the nipple and to other forms of carcinoma of the breast. In those breasts in which only one peripheral duct and some of the acini are affected these structures are full of epithelial cells whose nuclei and protoplasm stain well, with no appearance of desiccated cells, nor of the large, swollen, colostrum-like cells, and look decidedly malignant. The appearances seen in these ducts lead me to believe that carcinoma in an early stage can exist for long periods in ducts which do not show epithelial transgression of their walls. Epithelial cells in the earliest stages of carcinoma are heaped up in ducts and acini, and distend them as if they were waiting for the final accident of rupture, through which they can escape into the surrounding tissue. Precisely similar changes are seen in the early stages of tar cancer in mice. This observation is supported by the appearances noted in a duct whose epithelial hyperplasia belongs to this type (Fig. 6). This duct is distended by non-desquamative epithelial cells; at one part of it there is a solution of its continuity, and through which non-desquamative epithelial cells are pouring into the connective tissue, and carcinoma is undoubtedly present. It is most instructive and interesting to compare this ruptured carcinomatous duct with that duct in which the rupture occurred from overdistension, by the heaping up within its interior of large desquamated cells of colostrum type (see Fig. 3).

Clinical Signs.—The distended ducts and acini give rise to marked local nodularity. Pain is associated with the state and is referred to the site of nodularity, and is made worse on palpation. There is no discharge from the nipple, and lymphatic glands may be enlarged in those examples where the epithelial cells have passed their natural boundaries. This is one of the types that are so important to remove at the earliest possible moment. As a rule it comes for operation after it has passed through the usual period of diagnosis of "chronic mastitis."

D. *Papillomata.*

Pathology.—Although one papilloma may exist in a breast, it is uncommon, and as a general rule it contains many papillomata. Where one papilloma exists, it is situated generally in an ampulla. Where many exist, one of them is usually found in the ampulla and the rest are scattered diffusely throughout one duct or more than one duct. I have whole sections of a breast in my possession that contain two ducts and their ampullae full of papillomata. Altogether over 170 can be counted in one of the sections. The papillomata belonging to this class are multiradicular as a rule—that is to say, each papilloma may arise from many points in the wall of the duct. The epithelium in the tops of these papillomata coalesce. Sometimes the epithelial cells form columns which unite at their tops, also masses of epithelial hyperplasia arise directly from the lining of the duct and give rise to sessile tumours. The connective tissue in papillomata may be one of three types. It may consist purely of intra-elastica connective tissue; it may contain stalks of extra-elastica tissue, and hence contain the elastica in the centre of the stalk; and thirdly, the latter type may also contain an intra-elastica hyperplasia. It is a very interesting fact that papillomata are frequently present in the parts of those ducts which lead directly into the mass of spreading carcinoma. Papillomata often show evidence of past haemorrhage into their structure and into their ducts. I have no time to discuss the problem as to whether papillomata can become malignant. They may grow to enormous proportions. A uniradicular papilloma is a rare occurrence.

Clinical Signs.—The general appearance of a breast is normal when the papillomata are small. When they become large they may deform the breast and even protrude from a duct orifice on the surface of the nipple. There is often a history of pain, not of a severe character. Sometimes there is a history of discharge of blood or serum from the nipple. I possess a specimen the clinical signs of which had lasted eight years and a blood discharge from the nipple was only noticed once, and that was in the middle of its history. When haemorrhage from the nipple occurs, it is a classical sign of papillomata or carcinoma of a duct. Papillomata can exist, however, without inducing haemorrhage from the nipple. On palpation one ampulla or more than one ampulla may be felt enlarged, palpation of which may induce pain and haemorrhage, or a discharge of serum. When the duct is full of papillomata an enlarged ampulla can be felt, and its ducts and branches can be distinguished tortuous and enlarged right down to the periphery. The general sensation on palpation is one of nodularity, and more than one duct may be affected.

CLASS III.—IN WHICH EPITHELIAL HYPERPLASIA APPEARS TO BE, HISTOLOGICALLY, OF LESS IMPORTANCE THAN THE HYPERPLASIA OF THE CONNECTIVE TISSUE.

A. *Hyperplasia Elastica.*

Pathology.—In this state there is a universal massive hyperplasia elastica throughout the whole lengths of all the ducts and those acini that happen to be surrounded by elastica. It is of enormous and surprising proportions and density. Hyperplasia elastica is accompanied by a loose hyperplasia extra-elastica. One never extends beyond the limits of the other, and their limit is the general supporting connective tissue of the breast. The state I discovered incidentally, on making whole microscopical sections of carcinomatous breasts, and of non-desquamative hyperplasia of epithelium (Type C). In one of the carcinomatous patients primary malignant disease and massive hyperplasia elastica were present in both breasts. Less marked hyperplasia elastica occurs in ducts that contain carcinoma and in ducts that contain a highly suspicious type of non-desquamative epithelial hyperplasia.

Clinical Signs.—Massive hyperplasia elastica gives rise to multiple solid nodules over the whole breast, which are due to tortuous, thickened ducts and the affected acini. The condition is painless, and I do not know how it can be diagnosed by clinical examination.

B. *Hyperplasia Intra-elastica.*

Pathology.—Hyperplasia intra-elastica affects mainly peripheral ducts and acini, sometimes picking out a terminal duct and its lobule. Its presence is very marked and always local. I have never seen it generalized. In the early stages the loose, delicate, cellular, fibrillous tissue inside the elastica undergoes diffuse hyperplasia. It may be evenly distributed, or it may be more marked at one place than another. The fibrillous matrix supports isolated bipolar or stellate cells. Here and there the layer shows a marked tendency to grow larger and give rise to a small intra-elastica fibro-adenoma, an intra-elastica papilloma, or only an irregularity of its surface. It usually undergoes degeneration, when only an occasional cell can be stained to prove its cellular origin. It is not a common state, and it is often associated with carcinomatous breasts. Certain types of fibro-adenomata are derived from this tissue.

Clinical Signs.—Hyperplasia intra-elastica generally occurs in women over 35 years of age. Enlarged ducts and acini give rise to local nodularity of the breast. The breasts are nodular, but there are no special clinical signs by which the state can be diagnosed. I have discovered it only on making large microscopical sections and during their examination for other diseases.

C. *Hyperplasia Extra-elastica.*

Pathology.—This type is found distributed generally throughout the gland, or only in association with the formation of the extra-elastica type of fibro-adenoma; it is an essential part in the formation of this tumour. It is unnecessary to do more than allude to the general state of hyperplasia extra-elastica. I will deal only with the local state in connexion with the formation of fibro-adenoma. On cutting the breast in half, so that the incision passes through the affected and normal parts of the breast, a difference in the structure between these parts is at once evident macroscopically. The normal part of the breast appears white, the affected part appears lightish grey. The affected part usually occurs in the smaller ducts and acini at the periphery of the gland, and macroscopically looks definitely limited. Microscopically the limitation is not so definite. On cutting whole sections of these breasts for microscopical examination three things may be seen in the affected part: First, the fibro-adenoma, which attracts attention to the breast, is quite obvious. Secondly, a small, definite, unsuspected fibro-adenoma may be discovered in juxtaposition to it, or separated from it by a small area of breast tissue. Thirdly, the parts that appear lightish grey on macroscopical examination show marked hyperplasia extra-elastica, which is an essential part in the growth of this tumour. The parts of the breast that appear white are normal on microscopical examination.

Clinical Signs.—The fibro-adenomata are seen mainly in young people from 15 to 25 years of age, but may occur in breasts of much older people. Attention is drawn to the breast by the fibro-adenoma. On palpation the surrounding parts are nodular; the nodules are about the size of small shot. There is very little pain connected with this type, and it is usually localized to one segment of the breast.

I have not dealt with the management and treatment of these diseases, for these reasons—namely, that the correct management and treatment frequently depend absolutely on the most careful judgement and laborious and precise preliminary microscopical examination. The detailed description would take me so long that I must reserve this part of my subject for another time.

Finally, I hope I have said enough to show you that the term "chronic mastitis" is a misnomer, and does not correctly indicate the states to which it is universally applied; that the clinical signs on which its diagnosis now depends can only indicate the possibility of many, without specifying one, of the various lesions they hide, and that these lesions may include carcinoma in its earliest as well as in its late stages.

PSICAINE: A NEW LOCAL ANAESTHETIC.*

BY

A. J. COPELAND, M.A., M.B., D.P.H., B.Sc.,

ERNEST HART MEMORIAL SCHOLAR, BRITISH MEDICAL ASSOCIATION.

(From the Pharmacological Laboratory, Cambridge.)

THIS cocaine substitute is an optically active isomer of ordinary cocaine prepared by Willstätter in collaboration with the firm of E. Merck of Darmstadt.

Cocaine is formed from the combination of l-ecgonine with methyl alcohol and benzoic acid. L-ecgonine contains four asymmetric carbon atoms, so that sixteen optical isomers are possible, eight of which are the mirror images of the other eight. One isomer of l-ecgonine is d-ψ-ecgonine, which differs from the former in the arrangement in space of the H and OH groups. D-ψ-cocaine is built up from this in exactly the same way as cocaine is built up from l-ecgonine, and the acid tartrate of this substance is known as "psicaine."

In Germany psicaine is approximately twice as expensive as cocaine, but it is said to have double the anaesthetic power, half the toxicity, and to be free from addiction properties. Psicaine is freely soluble in cold water up to 25 per cent., and is not precipitated by saline solution, Ringer, nor by proteins.

On the cornea psicaine in my experiments has approximately one-sixteenth the anaesthetic power of cocaine. The minimal effective concentrations to give complete anaesthesia after instillations lasting one minute are—for cocaine 0.25 per cent., and for psicaine 2-5 per cent.; on the other

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hand, a 0.5 per cent. solution of cocaine and an 8 per cent. solution of psicaine are equally effective in giving complete anaesthesia averaging thirteen minutes under the same experimental conditions. Psicaine moderately dilates the pupil in rabbits for twenty-four hours; it causes slight vascular congestion, but no drying of the cornea.

In my earlier experiments for determining the activity of local anaesthetics on nerve fibres I chose the vagus, and estimated the duration of the loss of conductivity of the cardiac fibres. In the present investigation I have adopted also the method of using true sensory nerves. The most satisfactory nerve in rabbits was found to be the anterior crural, both because of its small size and the ease with which a long portion can be separated.

For the quantitative comparison of the anaesthetic action of different local anaesthetics it is necessary to choose some nerve peripheral stimulation of which produces an effect which can readily be estimated. It is clearly of great importance that this nerve should be small in size. The American and German observers have, for the most part, used the sciatic nerve of animals; the objections to this are obvious, because the nerve is so big that before a complete anaesthesia is produced the drug has to penetrate a considerable thickness of nerve tissue—that is to say, the rate of penetration or absorption comes into play. When a drug is injected subcutaneously it acts on only the very finest of the nerve fibrils, and therefore to obtain any result comparable with the effect of a subcutaneous injection the finest nerve possible should be chosen for experiment.

The method adopted is a modification of that recently described by Schmitz and Loevenhart.[8] The rabbit first receives an injection of urethane (1.5 gram per kilo), and one hour later ether is administered and a cannula is inserted into the trachea. The anterior crural nerves are isolated and are cut as near to the periphery as possible. Ether is now discontinued, the urethane giving adequate and uniform anaesthesia. Each anterior crural nerve is held by a protected electrode at a point 2 cm. from the cut end, and is excited by the weakest current necessary to produce a definite effect on respiration. A tambour connected to the tracheal cannula records the respirations on a moving drum. In all experiments, both with the vagus and with sensory nerves, the drug is applied over 1 cm. of nerve for thirty seconds. The nerve is stimulated immediately after painting, and subsequently every few minutes, the absence of any effect on respiration denoting complete anaesthesia. By using a double key in the secondary circuit the other anterior crural nerve can be excited by the same current and serve as a control, and subsequently used for a comparative test with another drug.

The results of experiments given in Table I show that the activity of psicaine compared with that of cocaine and tutocain is very weak for both sets of fibres. Novocain in 0.05 per cent. solution has the remarkable action of paralysing sensory nerve fibres in a degree equal to that of cocaine, but in double this strength it has no effect on vagal cardiac fibres. Dixon has shown[7] that cocaine has certain specific effects in that it paralyses sensory fibres before motor in mixed nerves, and efferent before afferent fibres in the vagus. Novocain has a strong affinity for sensory fibres and relatively little action on the cardiac fibres of the vagus.

TABLE I.—*Effect of Local Anaesthetics on Nerve Fibres.*

(Figures refer to the duration of complete loss of conductivity, in minutes.)

	Cocaine Hydrochloride.	Tutocain.	Psicaine.	Novocain.
Vagus nerve: cardiac fibres	0.1 % 12	0.1 % 10	0.1 % 5 8	0.1 % 0
Anterior crural nerve: sensory fibres	0.05 % 15-20	0.05 % 5-8	0.05 % 0	0.05 % 15-20

The toxicity of psicaine was estimated by determining the minimum lethal doses for rabbits, guinea-pigs, and mice, and also, in rabbits, the minimal doses required to produce convulsions lasting five minutes. The results are given in Tables II and III.

TABLE II.—*Minimum Lethal Doses Compared.*

	Cocaine.	Psicaine.	Novocain.
Rabbit—	mg. per kilo.	mg. per kilo.	mg. per kilo.
Intravenous: 1 per cent. solution (1 c.cm. in 18 secs.)	12*	14	90
Subcutaneous: 5 per cent. solution	75 (200*, 90†)	40	600
Guinea-pig—			
Subcutaneous: 2 per cent. solution	30	40	Over 350
Mouse—			
Subcutaneous: 2 per cent. solution (dose in mg. for 20 gm. mouse)	5	7-10	18

* See Reference [11]. † See Reference [6].

TABLE III.—*Minimum Convulsant Dose for Rabbits.*

	Cocaine.	Psicaine.	Novocain.
	mg. per kilo.	mg. per kilo.	mg. per kilo.
Intravenous: 1 per cent. solution (1 c.cm. in 18 secs.)	8	8	45
Subcutaneous: 5 per cent. solution	40	35-40	120

The figures for cocaine given in my previous paper[9] have been modified, and represent the results of experiments made with a sample of cocaine hydrochloride having a melting point of 182° C. (normal 183° C., Martindale).

The Abbott Laboratories, Chicago, U.S.A., the manufacturers of butyn, inform me that they have found "considerable variation in the toxicity and efficiency of different samples of cocaine." They consider that the inequality of samples probably accounts for discrepancies in the results obtained by different investigators, and they suggest that there may be a relation between melting point and toxicity.

In rabbits psicaine, injected subcutaneously, was found to be more toxic than cocaine, whereas injected intravenously the two drugs are of almost equal toxicity. Guinea-pigs and mice are relatively less susceptible to psicaine.

Both cocaine and psicaine give rise to symptoms identical in character though not in degree. Experiments on frogs show that psicaine is a more powerful stimulant than cocaine, since it will more readily increase reflexes and will even produce convulsions, which cease when the cerebrum is destroyed. In rabbits, following a preliminary stage of excitement during which reflexes are increased, there is a sudden tonic spasm, and this is succeeded by a stage of marked clonus in which there are violent spasms of the limb muscles, together with twitchings of the muscles of the head area. The head is retracted and the corneal reflex is lost. With larger and lethal doses the clonic spasms are very violent and are quickly followed by death from failure of respiration. Convulsions do not occur when the cerebrum is destroyed, nor after the administration of a general anaesthetic.

The irritant effect of psicaine is less than that of cocaine, and for practical purposes should not be of any significance. In rabbits 0.5 c.cm. of a 10 per cent. solution of psicaine injected subcutaneously causes slight hyperaemia, followed by thickening lasting two days and some desquamation on the fifth day, whereas cocaine in similar concentration produces ecchymosis and thickening lasting three days, followed by scab formation.

Psicaine has relatively little effect on blood vessels, and its action suggested that psicaine would not cause any swelling of the nasal mucous membrane. This, however, is not the case in the cat, since, using my perfusion method,[10] it was found that after an application of a 5 per cent. solution of psicaine lasting twenty-five minutes the mucous membrane became so swollen as almost completely to obstruct the flow of fluid—an effect which lasted for several hours.

In this series of experiments I have been unable to verify the claims for efficiency and low toxicity which have been made for psicaine. If these experimental results are confirmed psicaine is unlikely to be useful as a substitute for cocaine.

I desire to express my thanks to the Medical Research Council for the special grant it made for the expenses of this research, and to Professor W. E. Dixon, to whom I am greatly indebted for help and advice throughout the investigation.

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PSICAINE: AN ARTIFICIAL COCAINE.*

BY

E. WATSON-WILLIAMS, *M.C.*, CH.M.,

ASSISTANT SURGEON, EAR, NOSE, AND THROAT DEPARTMENT, BRISTOL ROYAL INFIRMARY.

PSICAINE is said to be the acid tartrate of a pseudo-cocaine, a dextro-rotatory artificial isomer of natural cocaine.[1] (Formula, $C_{17}H_{21}O_4N.C_4H_6O_6$; molecular weight, 453; alkaloid content, 67 per cent.). It is a white crystalline powder, very soluble in hot water, soluble in cold water up to 20 per cent.; the solution is acid in reaction, 1 per cent. solution giving a rather pinkish orange tint with dimethylamino-azo-benzene—*p*H about 3.3; the solution is also dextro-rotatory. (This is mentioned, as other properties of the substance I have examined differ somewhat from those described in Continental reports.[1]) The powder is sparingly soluble in alcohol.

Anaesthesia.—Applied to the nasal mucous membrane a 5 per cent. solution gives very good anaesthesia. As compared with 5 per cent. solution of cocaine hydrochloride, the time taken for full anaesthesia is rather longer; the depth of anaesthesia ultimately obtained is the same. The duration of anaesthesia without adrenaline is over fifteen minutes, after packing. If 7 per cent. solution is used, the time required for anaesthesia is practically the same as with 5 per cent. cocaine hydrochloride solution. (The alkaloid content of 7 per cent. psicaine solution is 4.7 per cent., that of 5 per cent. cocaine hydrochloride solution being 4.5 per cent.) I have made over fifty observations with uniformly good results, performing such operations as puncture of the antrum, cauterization, etc. I have not found that the anaesthetic value is twice that of cocaine as claimed.

Toxicity.—No cases of toxicity in the human subject have been brought to notice. Experiments have shown that doses up to 70 mg. do not produce excitement or fainting when injected into men.[1] This dose (containing less than gr. 3/4 of alkaloid) is too small for deductions of value; many men might escape symptoms after the same quantity of cocaine.

Shrinkage.—Psicaine is said to be a vaso-dilator, but I have found uniform good shrinkage after spraying the nose with ɱv of 5 per cent. solution. This strength also checks bleeding. If it is desired to use adrenaline the solutions mix well.

Irritation.—I have found no case of primary or late irritation with solutions of the strengths described.

Habit Formation.—In common with all cocaine substitutes, psicaine is said not to lead to addiction. Deductions from animal experiments support this view—the dose required to produce excitement would probably be so near the lethal dose as to prevent the drug ever making a popular appeal.

Stability.—A 5 per cent. solution of psicaine grows "moulds" just as does cocaine solution; the addition of 1/4 per cent. salicylic acid prevents this. Time has not allowed an investigation of keeping powers; the solution is unaltered after two months. Psicaine can be boiled for five minutes, or steamed for an hour, with only slight loss of power; fifteen minutes in the autoclave at 134° C. seriously diminishes the anaesthetic power and the experimental toxicity.

Dangerous Drugs Acts.—It appears that psicaine comes under the Dangerous Drugs Acts. (The Home Office is investigating this point, and will give a decision when the work is complete.)

Experimental Work.—Subcutaneous injection into guinea-pigs* was chosen as a method of comparison. The minimal lethal dose in 5 per cent. solution was found to be 53 mg. per kilogram. The toxicity is therefore 19 kilograms per gram of psicaine (the toxicity of 5 per cent. cocaine hydrochloride is 25 kilograms per gram). The toxicity figure is affected by the large proportion of acid in the molecule—just under a third. In kilograms per gram of alkaloid, the toxicity is 28, the same as that of cocaine in 5 per cent. cocaine hydrochloride solution. In 1 per cent. solution, the toxicity of psicaine is 18 kilograms per gram. The new isomer therefore appears to have no advantage over the natural alkaloid as regards toxicity measured by the minimal lethal dose. The minimal convulsant dose seems to be almost the same as the minimal lethal dose: it was practically impossible to produce convulsions without killing the animal. Assuming that the same holds good in in man, and further that there is some relationship between the dose required to produce excitement, nausea, fainting, etc., and that required to produce convulsions, it is seen why I consider the drug unlikely to become one of addiction: the dose necessary for excitement would be dangerously high—that is, psicaine probably has a high "danger ratio." This is important, since, if so, we shall not be warned when our clinical dosage is getting dangerously large. No one should use psicaine who has not acquired with the much safer (from this aspect) cocaine hydrochloride practice in safe dosage. When death occurs, it is from respiratory failure, the heart continuing to beat after the respirations cease. Under ether anaesthesia, deep enough to abolish reflexes, convulsions do not occur, but the same dose kills the animal, respiration gradually failing; it is not, in fact, the convulsions that cause death.

Summary.

1. Psicaine is the acid tartrate of an artificial isomer of cocaine. It is soluble in water, giving a definitely acid solution. The solution is not harmed by brief boiling. It requires the addition of salicylic acid to prevent the growth of moulds.

2. Used in the nose, 7 per cent. psicaine solution gives anaesthesia identical with that produced by 5 per cent. cocaine hydrochloride solution. The anaesthetic value of the new alkaloid is the same as that of natural cocaine.

3. The same "shrinkage" as is seen with cocaine is found in using psicaine.

4. The experimental toxicity of psicaine in 5 per cent. solution is three-quarters that of cocaine hydrochloride; the toxicity of the new alkaloid is therefore identical with that of cocaine.

5. It is probable that excitement, fainting, etc., will not be so readily produced by psicaine as by cocaine; it may therefore be useful in susceptible persons.

6. For the same reason psicaine should not be used except by those well accustomed to use cocaine; the dose of psicaine should not exceed that found safe with cocaine.

7. Psicaine is a "dangerous drug."

8. The price of psicaine has not yet been published.

I am indebted to Professor Walker Hall for permission to use the Pharmacological Laboratory of Bristol University for the experimental work on psicaine; and to Messrs. Merck of Darmstadt for supplies of the drug.

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[1] *Muench. med. Woch.*, 1924, No. 26.

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THE TREATMENT OF PERFORATED GASTRIC AND DUODENAL ULCERS.

WITH A REPORT ON FORTY CONSECUTIVE CASES.*

BY

G. PERCIVAL MILLS, F.R.C.S.,

ASSISTANT SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM.

THIS paper is a plea for the performance of gastro-jejunostomy whenever possible at the time of operation for perforation. Beginning with some apprehension, I have been led to do so more and more frequently with increasing experience, and I now regard it as almost a routine part of the operation.

The cases analysed below are all those I have treated in hospital since my return from the war: 16 were duodenal, 15 pre-pyloric, 5 in the body of the stomach, and in 4 the situation of the ulcer is not stated in the notes. There were 38 males and 2 females.

Treatment.

Every case but one was operated on. This patient was moribund on admission, and failed to rally with treatment. The death is included in the mortality statistics. In early cases, seen within about twelve hours of perforation, suture of the ulcer and gastro-jejunostomy was performed without drainage of the peritoneum, except in three instances of very severe soiling, in which a suprapubic drain was put to the bottom of the pelvis. I have long discontinued drainage through the main wound. The same treatment was adopted in a few late cases in which the patient, in spite of long perforation, was still in good condition. In the majority of late cases suture of the ulcer and pelvic drainage was all that was attempted. A single row of sutures covered by omentum was used, and this proved mechanically efficient to prevent further leakage. I believe it is waste of valuable time to put several rows of sutures.

Mortality.

Of the whole series 11 died, including the case not operated on—a gross mortality of 27.5 per cent.

Of 22 cases in which immediate gastro-jejunostomy was done, one died—a mortality of 4.5 per cent. The death was due to pneumococcal peritonitis seven days after operation.

Of 17 cases in which suture and drainage without gastro-jejunostomy were done, 9 died—a mortality of 52.9 per cent. This high mortality, of course, reflects the fact that the operation was reserved for the worst cases. Five of them died within twenty-four hours of operation of peritoneal shock, three a few days later from peritonitis, and one from acute nephritis and uraemia.

A striking fact about the series is the complete absence of what I used to regard as a common complication—subphrenic abscess. I attribute this to the fact that I put no drainage tubes into the upper abdomen. It might be supposed that subphrenic abscess would be commoner in these circumstances, but clearly the reverse is the case, for since I gave up draining the upper abdomen I have had no subphrenic abscess.

End-results.

All the patients operated on over six months ago were written to, and several were seen personally. Of the 29 survivors 22 were traced.

Cases without Gastro-jejunostomy.—Traced 8, perfectly well 1, still serious gastric trouble 5, relieved by subsequent gastro-jejunostomy 1, died of carcinoma 1. Thus of eight cases only one was cured.

Cases with Gastro-jejunostomy.—Traced 14, perfectly well 10, at work but some gastric discomfort at times 4.

Commentary.

The difference in these end-results is very striking, and shows clearly the advantage of performing gastro-jejunostomy at the time of perforation whenever the patient is in a condition to stand it. Moreover, there is no doubt that with gastro-jejunostomy the patients do better and have a shorter convalescence than without it. A perforated ulcer is an active ulcer, and it is only natural that to put it at rest should increase the patient's chance of recovery. On the other hand, to do more than is absolutely necessary to a patient suffering from a grave abdominal emergency is to invite certain criticism that the immediate mortality will be increased. If my mortality for the whole series, however treated, is greater than the average mortality for perforating ulcer, my method stands condemned, and this is why I have been careful to state my gross mortality of 27.5 per cent., which is, I believe, less than the average.

Obviously, considerable judgement is required to decide when to perform gastro-jejunostomy in these cases, but I find from my notes that I have gradually come to do so more and more frequently. Of the last 15 cases operated on I have performed gastro-jejunostomy in 13; all of them recovered, while the two in which I did not do so died.

* Abbreviated from a paper read before the Birmingham Branch of the British Medical Association, November 20th, 1924.

CONJUNCTIVITIS IN THE TROPICS.*

BY

ROBERT H. ELLIOT, M.D., F.R.C.S.,

LIEUTENANT-COLONEL I.M.S.(RET.).

I WAS once told by a surgeon with many years of tropical ophthalmic practice behind him that he did not recognize such a thing as tropical ophthalmology. Such a position premises to my mind a great lack of perception and of imagination. Tropical practice differs so materially from that in temperate climates as to demand a very special study in order to fit a man for success. We are all of us, as we grow older, conscious of regrets for lost opportunities, but there is no department of ophthalmology which brings up to my mind more often or more acutely the sense of what I might have done and did not do than the study of inflammations of the conjunctiva. I feel that the young man who starts his ophthalmic work in the tropics, awakened to an appreciation of the avenues of research opened up by this line of study, has great possibilities in store for him. With the view of stimulating the interest of some of the younger men in this very interesting subject I propose to review it in a more or less summary manner, and to indicate some of the lines along which I think that research can profitably be conducted.

There is another side to the question. The expansion of our colonies and the movement of great bodies of men to and from the tropics during the war has brought tropical disease to our very doors, and has stimulated an interest in the subject amongst our own medical men practising in Great Britain and in its temperately situated colonies. It is my hope that this bare outline of a great subject may therefore be of some interest to them too.

The habits of the residents in tropical lands, and the climatic conditions which prevail there, are favourable to the implantation of germs within the conjunctival sac and to their growth on its lining membrane. Sun, dust, and wind constitute a triad of evil influence adverse to the maintenance of conjunctival health. All who have lived in Eastern countries are conscious of the drying up of the skin and the rapid exfoliation of its surface layers which are experienced in the hot weather, and which are greatly aggravated when the hot air is in motion, and especially so when it is laden with dust, as it so often is in tropical lands. It used to be suggested that the epidemics of conjunctivitis with which every tropical worker is so familiar are due to the infection of the conjunctivae of the population by germ-laden air. As a matter of fact, the majority of the organisms responsible for the Eastern epidemics of ophthalmia are non-sporing, and we know by experiment that such are easily killed by drying. I will revert to this subject later on, being content here to lay stress on the view that the action of dust, like that of heat and wind, is probably traumatic, abrading the surface epithelium, causing local congestion, and so preparing the membrane for the growth of pathogenic organisms.

* A lecture delivered at the London School of Tropical Medicine on October 24th, 1924.

It is not always easy in studying epidemics to eliminate other factors and so to concentrate attention upon those which are most vital. This has, however, been done for us most admirably by Sichel in his investigation of an epidemic of conjunctivitis which occurred on Christmas Island. The climate in this locality shows a well marked wet season (January to May), and an equally distinct dry season (May to December), whilst the temperature is extraordinarily uniform. The mean annual temperature is 80.7° F., the extremes in the monthly averages throughout the years under observation showing a difference of only 2°, whilst the diurnal range does not exceed 14°. The industry of the island is the production of phosphate of lime; the phosphate quarries reflect the sun and cause an extreme glare, whilst the phosphatic dust is extremely irritating. Complete meteorological and hospital records were available for a period of fourteen years. It was thus possible to construct charts showing the close relationship existing between dry weather and the epidemics of conjunctivitis. The influence of glare and dust upon the causation of inflammations of the conjunctiva is clearly proved. The elimination of the temperature factor is most valuable and instructive.

The epidemics of conjunctivitis with which tropical practitioners are so familiar appear, wherever they occur, to have certain common and very definite characteristics. They have probably been better studied in Egypt than anywhere else in the world, but it would seem probable that what is true of them there is equally true, with minor variations, throughout the tropics. They present certain features of interest which should be carefully borne in mind—namely, (1) the great variety of organisms met with in these epidemics; (2) the very definite subdivision of what at first sight might be taken for a single epidemic into a number of subepidemics, each of which shows its own curve of rise and fall in more or less independence of the others; and (3) the curious evenness with which the same class of subepidemic repeats itself at the same time in each successive year, subject of course to variations in intensity, duration, etc., from year to year.

To illustrate these statements I may say that, with the exception of the conjunctivitis of Morax-Axenfeld origin, Meyerhof found that all the forms of acute ophthalmia in Egypt (inclusive of those of gonococcal, Koch-Weeks, streptococcal, pneumococcal, and diphtherial origin) become epidemic during the summer. Lakah and Khouri noted in Alexandria that the Koch-Weeks epidemic appears before the gonococcal, the former attaining its maximum in June, the latter in September. Meyerhof verified these observations in Cairo and Upper Egypt, with the exception that he found the Koch-Weeks conjunctivitis to attain a primary acme in May or June and a second in September or October, the latter being concurrent with that of the gonococcal epidemic. In December the curve of incidence falls, and only sporadic cases occur until the first days of spring. This sequence is repeated yearly with astonishing regularity, though the epidemic varies from year to year in its virulence.

Peculiar Features of Certain Epidemics.

Gonococcal Conjunctivitis.

We owe the main bulk of our knowledge of epidemic gonococcal conjunctivitis to the workers in Egypt, who have long recognized this variety of ophthalmia, and have studied its epidemiological features very carefully. Quite recently MacCallan and Beaton have drawn attention to the differences, long familiar to tropical practitioners, between gonococcal conjunctivitis as seen in Egypt and in some other tropical and subtropical countries, and the same disease—at least so far as origin is concerned—in Europe. Those differences may be briefly stated: (1) The tropical form usually results from contagion acquired from another conjunctiva instead of from the genital organs; (2) it is frequently subacute or chronic in its course; (3) it shows definite seasonal variations, becoming epidemic as the atmospheric temperature rises; (4) it is a far less virulent disease than that met with in Europe, the cornea often escaping injury. These observers are of opinion that the Egyptian disease is truly gonococcal, and that it is not due, as has been suggested, to a different organism which morphologically resembles the gonococcus. Beaton is now engaged on a further study of the subject, and is preparing immune serums, with the object of throwing light on the specific vital characteristics of the Egyptian conjunctival organisms as compared with genital gonococci.

The same disease has been studied in Indo-China by Talbot, who has watched it spread in families, in limited areas, and in whole villages during the hot months of July, August, and September. He has attributed the diffusion of the disease to the carriage of infection from case to case by fingers and other soiled objects. Similar evidence has come from different parts of the world, and certainly one of the most interesting of these contributions is that which comes from Samoa. We know that about a century ago a form of purulent ophthalmia was prevalent in Samoa and other South Sea islands, and that it became epidemic "in the bread fruit or fly season." It is believed that its appearance in Samoa dates from contact with the Caucasian, and is therefore one of "the blessings of civilization," which have been such a curse to those islands. In any case we know that gonorrhoea was very prevalent throughout the South Sea islands at the close of the eighteenth century. More recently the epidemics of the disease, which has come to be known as Samoan conjunctivitis, have been milder in type and smaller numerically than they were formerly. The symptoms are those of gonorrhoeal ophthalmia, but in a distinctly modified form; the cornea and the uveal tissues may be severely affected in neglected cases, but in those submitted to suitable treatment serious complications are absent. Quite recently Hunt has investigated Samoan conjunctivitis bacteriologically and with the aid of cultures, and has found that it is due to a Gram-negative diplococcus which he believes to be a modified form of the gonococcus. Not the least interesting part of his investigation was the implantation of the virus of the disease on a healthy conjunctiva, on a healthy male urethra, and on a virgin vagina. Of the three subjects two were volunteers and one was a prisoner.

Enough has, I think, been written to show that this form of tropical conjunctivitis has very definite characteristics of its own, and that it merits the careful attention of all who would practise ophthalmology in the tropics.

Membranous Conjunctivitis.

A disease rare in Europe, membranous conjunctivitis is of far more frequent occurrence in certain tropical countries, and may even occur there in epidemic form. Thus between September 7th and 20th, 1922, an epidemic of nineteen cases, all of which were truly diphtherial, was seen at Assiout (Girgis), whilst three more diphtherial cases and forty non-diphtherial appear in the same year's report. The ophthalmologists of Egypt regard the subject as so important that they recently went so far as to devote a special session of their annual meeting to its discussion (Ophthalmological Society of Egypt, *Bulletin* of 1923). MacCallan and Rasheed Bey there dealt with the bacteriological side of the question, and pointed out that organisms other than the diphtheria bacillus may produce a membranous conjunctivitis; their list included the staphylococcus, the streptococcus, the pneumococcus, the gonococcus, and the Koch-Weeks bacillus in addition to the Klebs-Loeffler organism. The non-diphtherial cases are rather less severe than the diphtherial.

Infection with Klebs-Loeffler bacillus may take place (1) directly by contact, or by fly transmission from case to case; (2) through a diphtheria carrier who presents no symptoms; (3) by such a carrier suffering from nasal catarrh; (4) through dust infected by dry membrane, etc.; and (5) by want of care in the handling of eyes in the out-patient department.

Other points of interest which were brought out at this meeting may be briefly alluded to. The affection may be unilateral or bilateral, and one eye may be much more strongly infected than the other. Diphtherial conjunctivitis is not often accompanied by faucial or nasal diphtheria in Egypt. Paresis of accommodation may occur as the result of a previously undiagnosed attack of ophthalmia (Sobhy Bey), though such an event must apparently be regarded as

very rare; indeed, MacCallan and Rasheed Bey have never seen the accommodator muscle affected in any of their cases. All varieties of membranous conjunctivitis may be accompanied by glandular enlargement. When it occurs in epidemics true diphtherial conjunctivitis appears to pass from eye to eye, and it is rare to get a history of contact with patients suffering from the usual forms of diphtheria. Symblepharon is never seen after the disease in Egypt, but 63 per cent. of MacCallan and Rasheed Bey's cases had corneal ulceration, and 50 per cent. lost one or both eyes; this unfortunate record—so much worse than might have been anticipated from European experience—was largely due to the fact that diphtherial, like many other forms of tropical conjunctivitis, is often a mixed infection. When in doubt as to the cause of a membranous conjunctivitis a dose of antitoxin should always be given whilst waiting for the bacteriological report. Constant irrigations with eusol and painting of the conjunctiva with 2 per cent. silver nitrate solution are recommended; when the lids are swollen hot fomentations should be used. Fly-proof rooms or tents are advocated, and careful disinfection should be carried out at the end of each case, for diphtherial membranes, when dry and kept in the dark, may produce cultures months afterwards. Those in contact with the cases are advised to gargle with potassium permanganate solution (1 in 5,000) thrice daily, and to wear protected glasses; utensils should be disinfected in buckets containing solution of cyllin (1 in 200), and the same disinfectant should be placed in convenient spittoons.

Swimming Bath Conjunctivitis.

Of late years attention has been directed in various centres in Europe to the occurrence of severe epidemics of conjunctivitis which have had their origin in swimming baths. In one at least of these, which occurred in Berlin, the bath was well cleaned and well built. The interest of these observations to the tropical ophthalmologist lies in the clear implication that the conjunctiva may be readily infected from contaminated water, and that we have here a possibly fruitful line of investigation in our study of the epidemics of conjunctivitis with which we are so familiar in the tropics. It may well be that under tropical conditions water, and especially dirty water, may at certain times of the year breed in abundance some at least of the forms of organism which are responsible for such epidemics. No one who has visited Turkish baths in an Eastern city, or who has watched Oriental natives performing their ablutions in polluted water, can fail to be suspicious of the possibility of this form of transmission of infection.

Pediculous Conjunctivitis.

Some years back Ruata recorded the observation that the eyelids of negroes are especially liable to attack by the pubic louse. More recently Blanc has noticed a close connexion between pediculosis of the scalp and phlyctenular conjunctivitis both in France and in Tunis. It is of peculiar interest that the connexion between these two conditions in his tropical practice was equally marked both amongst Europeans and Arabs. He has had similar experiences also at Athens and in Crete. To confirm the connexion he injected into the eye of a monkey an emulsion of ground-up lice and produced a typical phlyctenular conjunctivitis a little over two months after the inoculation.

Koch-Weeks Conjunctivitis.

In lands where trachoma is rife, Koch-Weeks infection plays so important a part that prophylactic measures against it merit very careful study. Recently Nicolle, Conseil, and Cuénod have been studying the advantages of preventive inoculation against this form of conjunctivitis. Both subcutaneous and subconjunctival injections were employed, and the patients were then subjected to the instillation into the conjunctival sac of fresh cultivations of the Koch-Weeks bacillus without any serious symptoms supervening, whilst a control case showed typical infection. To those who know the havoc wrought in tropical countries amongst trachomatous patients by mixed infections—in which the Koch-Weeks organism plays a by no means unimportant part—these observations will have a very real importance.

THE TREATMENT OF VARICOSE VEINS OF THE LEG BY INJECTIONS.

BY

JOHN DUNBAR, M.B.GLAS.,

ASSISTANT SURGEON, GLASGOW ROYAL INFIRMARY.

DURING my student days I became greatly interested in varicose veins of the leg, on account of the number of operations performed and the number of recurrences which I saw at the dispensary. It was evident to me then that there was no one operation which could with certainty be relied on to effect a cure, recurrences taking place after each of them in a large proportion of cases. This impression has been greatly deepened since, and has led me to try some other means of benefiting these patients without the necessity of incapacitating them for work for at least six weeks and without the risk of a general anaesthetic.

Dr. Sicard in 1923[1] described his method of injecting varicose veins with sodium salicylate. Thrombosis of the veins is produced. The danger of producing thrombosis in veins, to my mind, was the fear that the thrombosis would extend up the vein or produce embolism. Having had at that time (May, 1923) a large experience of treating haemorrhoids by injection, and also having convinced myself from clinical experience and the examination of microscopic slides that thrombosis was produced in these haemorrhoids, that the thrombosis did not extend up the vein, and that embolism was not produced, I commenced injecting veins with sodium salicylate, and have now treated thirty cases by injection.

My first patient was a female shop assistant with varicose veins of both legs. The left leg, being the worse, was injected. She was kept in hospital for one week after the injection, but was allowed to go about the wards. At the end of the week she was sent home. I have seen her at various intervals since, and on the last occasion she asked me to inject the other leg. She has never been off work since May, 1923, on account of the varicose veins, while previously she had to take days off repeatedly. The other cases have all been treated as out-patients and have not been incapacitated beyond one day, except one case in which cellulitis was produced.

The method employed by Dr. Sicard when using sodium salicylate is as follows: The susceptibility of the patient to the drug is tested by injecting about 1 c.cm. of 20 per cent. solution into the veins. If there is no reaction next day a stronger solution is used, but it is recommended not to go above 40 per cent. Several sections can be injected at the same time, but the total dose of sodium salicylate should not exceed 3 grams. No constricting band is used. The patient, as a rule, complains of a very severe pain coming on immediately after the injection and lasting about one minute. Occasionally goose-flesh feeling and slight cramp in the leg or foot are noticed, lasting for a short period. Dr. Sicard states that this method is very suitable for varicose veins which are bunched together, and that one injection may effect a cure. If a cure does not result the treatment can be repeated. Immediately following injection the vein swells, and its contents can be felt becoming hard. When examined about a week afterwards one or two things will be found if a cure is going to be effected: (1) a hard mass is felt in the vein at the seat of injection, and (2) in addition it is found in some cases that thrombosis is extending down the vein. In no case was extension up the vein noted. Later the vein, if thrombosis has extended downwards, becomes replaced by a fibrous cord. If thrombosis has only occurred at the seat of injection, the veins below remain patent and varicose, but whatever happens the patient always states that the veins are reduced in size and the strength of the limb is greatly increased. On account of the severe pain experienced after injecting sodium salicylate, I have been trying the effect of mercury perchloride (1 in 500). A few minims only are injected at different points. There is less pain, the swelling of the vein is much less, and the results are as good. My method is to insert into the vein a fine needle pointing downwards. When the blood flows freely through the needle I attach the syringe containing the fluid to be

injected, block the vein above the needle with my left thumb, and inject slowly into the vein. The syringe is then removed, and the blood prevented from flowing out of the needle by placing a finger on the mount. The needle is left *in situ* for about one minute, or until no blood flows out of it. The left thumb is removed at the same time as the needle is withdrawn. During the operation the patient is seated at a convenient height. By this method the fluid is prevented from getting into the cellular tissues. In one case, where some 30 per cent. solution of sodium salicylate got into the cellular tissues, a cellulitis was produced and a slough formed at the site of injection. As the tissues over a varicose vein are very thin and their vitality greatly reduced, this is liable to happen unless great care is taken to ensure that no fluid escapes into the subcutaneous tissues. Where a varicose ulcer or eczema is present the effect of the injection is sometimes very marked.

In no circumstances would I recommend the injecting of an inflamed vein. In my opinion, before treatment is begun a considerable period should elapse after inflammation has been present, both on account of the danger of producing a recrudescence of the inflammation and subsequently septic emboli, and also, in some cases, after phlebitis it is found that a cure has resulted.

I do not claim that the results of injecting varicose veins are better than those obtained by operation, or that the liability to return of the varicose condition is less (in fact, I would expect the percentage of recurrences to be higher); but I do claim that the treatment improves the circulation in the legs, and consequently the strength of the lower extremities, without incapacitating the patient in any way.

REFERENCE.
[1] *Journ. de Thérap. Franç.*

DORSO-LUMBAR DISLOCATION OF THE SPINE REDUCED BY OPERATION.

(*With Special Plate.*)

BY

W. A. H. McKERROW, M.B., F.R.C.S.,
HONORARY SURGEON, PRESTON ROYAL INFIRMARY.

THE occurrence of spinal dislocation without fracture is extremely rare below the cervical region. The case to be described was practically a pure dislocation of the twelfth dorsal from the first lumbar vertebra.

Walter R., aged 25, motor driver, was admitted on February 4th, 1924, to the Royal Infirmary, Preston, suffering from shock and paraplegia. The following history was obtained: When driving a heavy vehicle from Ormskirk to Preston, the same evening, he had stopped just round a right-angled bend in the road, and got underneath the car, taking the rear light with him, to inspect and repair a leaking petrol pipe. Another vehicle ran into the stationary car from behind, and knocked it forwards a few yards; one of the wheels passed over R.'s body.

On admission the patient was conscious and in a state of severe shock. There were numerous abrasions of skin over the chest and upper abdomen, especially on the right side. Both lower extremities were completely without power of movement; knee- and ankle-jerks were absent. There was no sensation in the right foot and reduced sensation in the other parts of the lower limbs. The patient complained of great pain in the back and at the right side of the chest; respiration was difficult. Subconjunctival haemorrhage was present in both eyes. There was swelling and loss of alignment of spinous processes at the dorso-lumbar region, without undue prominence of any particular spinous process. Sphincteric control was lost. The abdomen was soft, and resonant in the flanks. The tenth right rib was fractured.

X-ray examination on February 5th showed a lateral dislocation of the twelfth dorsal from the first lumbar vertebra, with displacement of the lower portion of the spine to the right. Apart from a small chip of bone detached from the left upper margin of the first lumbar body, the injury was a pure dislocation (see Fig. 1).

An attempt at reduction under anaesthesia on February 6th by traction, etc., was unsuccessful.

On February 7th, assisted by my colleague Mr. A. Toulmin, I exposed the injured part by a median dorsal incision, with the patient in the prone position. The articular processes were intact; the left lower articular process of the twelfth dorsal vertebra was placed externally to the left upper process of the first lumbar, thus opposing reduction. Laminectomy of the first lumbar was performed, but this did not help matters much, except to give a better view of the spinal cord, which was seen passing obliquely in a strap-like manner between the displaced vertebrae. The spine was then flexed at the injured part by raising the lumbar bridge of the operating table. This disengaged the articular processes; by lateral pressure they were forced into correct alignment and the spine was then allowed to extend by letting the bridge down. The articular processes thereupon fell into their correct positions, and as they were intact there was no tendency to recurrence of the displacement (see Fig. 2). The dural sheath of the cord appeared to be uninjured. Muscles and fasciae were united as well as possible; a small drain was placed at the lower end of the wound.

After operation the patient was kept on his back, with a pillow under the injured part of the spine. There was complaint of pain and "pins and needles" in the legs for two days. Cystitis was present, the urine being alkaline and containing blood and pus. Regular catheterization was necessary.

On February 11th very slight active movements were elicited at the left great toe. Tested on February 21st, most of the muscles of both lower limbs were found to respond to faradism, the responses being weaker on the right side than on the left. Within three weeks there were feeble active movements in the muscles of both limbs, above and below the knee. Under treatment by massage and electrical stimulation these gradually became stronger. Sensation was normal, except at the right sole, where it was diminished, and over the right great trochanter, where it was absent over a small area (see later). A small bedsore over the sacrum appeared, but soon healed.

By March 10th the cystitis, in spite of the usual remedies, was alarming; the urine was very foul, and the patient was running a temperature of 100° to 101° every evening. There was a small hard swelling above the pubic symphysis. On March 20th a suprapubic incision was made and pus evacuated from an abscess behind the symphysis. A separation of the symphysis, wide enough to admit a finger, was found; this injury had hitherto escaped observation. The bladder was then opened and a tube inserted. Subsequently the patient's general condition improved markedly. The suprapubic incision eventually closed, after which catheterization was again necessary. There were no signs of returning control over the anal sphincter. The patient was discharged, to attend as out-patient, on September 18th. He had been trying his legs, assisted by crutches, occasionally during the previous three or four weeks.

Present condition (October 28th): The general condition is fairly good, and the patient maintains a cheerful outlook, as indeed he has done ever since the accident. He eats well; his weight is 8 st. 6 lb. (normally 9 st. 10 lb.). The operation wounds are well healed. He can get about the house without the aid of a stick; outside he can walk about half a mile with two sticks. He takes an aperient every three days, otherwise his bowels do not act. Having taken the aperient, he prepares to be incontinent. He wears a catheter, leading into a portable urinal. The catheter is removed and replaced twice weekly.

In walking the right leg is thrown outwards, as slight foot-drop is present. The left leg is a sound and useful limb, with full range of movement, active and passive; but the knee-jerk is weak and the ankle-jerk not elicited. The right leg is considerably weaker—for example, when sitting in a chair the patient can only partially extend the knee with the foot off the ground. Full passive extension of the knee is obtained, but not full flexion. The ankle is somewhat stiff and cannot be dorsiflexed passively to less than a right angle. The anterior and posterior tibial muscles have active power, but are weak; toe movements are almost absent. The peronei exhibit very faint active movements. The anterior part of the foot is somewhat inverted, giving a slight degree of pes cavus. No knee- or ankle-jerk is elicited on the right side, and the whole limb feels cold to the touch as compared with the left. There is slight oedema at both ankles and feet, more marked on the right side. Sensation to light touch with cotton-wool and to pin-prick is present over both lower extremities, except at a small area, about 4 inches square, over and above the right great trochanter, extending almost to the iliac crest. This area is quite anaesthetic to touch and pain; no doubt it indicates a laceration of the twelfth dorsal nerve, whose lateral cutaneous branch supplies this area. Although present, sensation is diminished at the right sole. Plantar reflex is not obtained at the right foot; at the left the second to fifth toes extend slightly, and the great toe remains motionless.

The right thigh measures 2 inches less than the left in circumference at middle; the right calf is half an inch less than the left. Oedema of the right calf masks the wasting of muscles. The muscles of the left leg respond to faradism, including the intrinsic muscles of the foot. On the right side response is feebler and absent from the peronei and foot muscles.

The urine is alkaline and deposits pus and phosphates; specific gravity 1020; albumin present. Treatment is being continued. (There has been some improvement in the condition of the urine since this report was written, and it is hoped soon to dispense with the catheter.)

Comments.

The spinal cord being crushed at the lower part of the lumbar enlargement—where the centres for control of the bladder and rectum are situated—recovery of voluntary control of these was not to be expected. Most of the nerve fibres to the muscles of the lower extremities have left the cord above the level of the injury in question, and in this case they soon began to recover from the pressure to which they had been subjected. A laceration of the twelfth dorsal nerve, at its exit from the intervertebral foramen between the twelfth dorsal and first lumbar vertebrae, is readily conceivable, to account for the area of anaesthesia over the great trochanter on the right side.

Most authorities are agreed that operation is rarely indicated in cases of spinal injury with complete transverse lesion of the cord, unless the injury is below the first lumbar vertebra. One would not go so far as to extend this limit upwards by a vertebra, as a general rule, on the strength of the case described; for although early and complete reduction was obtained, the patient is still, and is likely to remain, very much of an invalid; inasmuch as a return of sphincteric control is not to be expected. The presence of cystitis, moreover, which persists to some degree in spite of treatment, is a constant menace to the integrity of his kidneys. Nevertheless, the measure of recovery which has taken place is very encouraging. It is largely to be attributed to the optimistic outlook of the patient, and the skill with which he has been nursed.

The chief point of interest is the extreme rarity of such a lesion. Dislocations of the spine without fracture occur almost entirely in the cervical region—about 98 per cent. The remainder occur in the dorsal region. I have not been able to find any previous record of a dorso-lumbar dislocation.

I am indebted to Dr. A. Rayner, honorary radiologist to the Infirmary, for the excellent radiographs.

A CASE OF SUPRARENAL TUMOUR, WITH DEGENERATION OF THE RETICULO-ENDOTHELIAL SYSTEM.

(With Special Plate.)

BY

J. GRAHAM WILLMORE, M.D., M.R.C.P., AND MACKENZIE DOUGLAS, M.A., M.D.

IN a leading article in the BRITISH MEDICAL JOURNAL of September 20th, 1924, the question is raised as to what might occur in the event of damage to the cells of the reticulo-endothelial system. Comment is made as to the lack of clinical evidence on this subject, and the need for further investigation regarding the effects on digestion and metabolism of a diminished formation of bile.

A case recently under the care of one of us may possibly supply the answers to at least some of the problems thus postulated, and we think that a fairly full report of it may be of scientific interest.

X. Y. Z., aged 31, first seen on April 22nd, 1924, complained of diarrhoea and vomiting. The date of onset was uncertain, but probably not earlier than July, 1923. He had served in France, Salonika, and with the Egyptian Expeditionary Force from 1915 to 1919. He had "enteric" in 1916, but no other serious illness. Family history unimportant. Height 5 ft. 5½ in.; weight 8 st. 4 lb. 4 oz. On admission he was pale, and his general condition poor. His tongue was raw and red, with (later) small, sore, sprue-like ulcers on its right lateral surface near the tip. The teeth were in order. There was no pigmentation of skin, and no icterus. The central nervous system was normal, but he stammered.

The abdomen was distended, tympanitic, and rigid. There was tenderness in the right hypochondrium, where the patient complained of constant severe pain during the whole of his illness. No mass was palpable (confirmed by several observers).

The liver was diminished in size (percussion and *x* rays). No abnormality was detected in the spleen, heart, or lungs.

The urine was acid; specific gravity 1010; there was a faint trace of albumin; no sugar. (N.B.—Glycosuria had been found previous to admission.) No acetone or diacetic acid was present. Diastase: 24 - $\frac{8}{8}$ = 20 units—that is, within normal limits. Microscopically, hyaline casts and polymorphonuclear cells were found. Cammidge's reaction was positive.

The blood Wassermann reaction was negative on repeated examination, both before and after provocative neosalvarsan. Blood pressure 190/130. A blood count showed: red cells 5,530,000; haemoglobin 80 per cent.; colour index 0.7; white cells 15,500—polymorphonuclears 64 per cent., eosinophils 1 per cent., large mononuclears 4 per cent., lymphocytes 31 per cent.; no abnormal cells were present. (On August 8th the red cells numbered 6,000,000; haemoglobin 80 per cent.; white cells 22,700—polymorphonuclears 70 per cent., eosinophils 1 per cent., large mononuclears 9 per cent., lymphocytes 20 per cent.) Urea, 0.015 per cent.; cholesterol, 0.145 per cent. Van den Bergh's test showed no direct reaction, but a very weak positive indirect (mere trace).

Blood sugar:

(*a*) 9.30 a.m.	(fasting) 0.081 per cent.		
(9.35 „	50 grams of glucose per os.)		
10.5 „	0.156 per cent.	... ...	(Urine, 0)
10.35 „	0.205 „	... ...	(„ 2 per cent.)
11.5 „	0.187 „	... ...	(„ 1.51 „)
11.35 „	0.175 „	... ...	(„ 0)
(*b*) 10.27 a.m.	(fasting) 0.118 per cent.		
(10.30 „	50 grams of laevulose per os.)		
11.0 „	0.150 per cent.	... ...	(Urine, 0)
11.30 „	0.143 „	... ...	(„ 0)
12 noon	0.131 „	... ...	(„ 0)
12.30 p.m.	0.085 „	... ...	(„ 0)

The faeces were abundant, pultaceous, light clay coloured, fermenting, and offensive; they were completely acholic by chemical examination.

Neutral fat	16.8 per cent.	=25.5 per cent.	of all fat
Fatty acid	38.5 „	=58.6 „	„
Soaps	10.5 „	=15.9 „	„
Total ...	65.8 per cent.		

N.B.—Total should not exceed 22.5 per cent.

Microscopically, muscle fibres, oil globules, and fatty acid crystals were found in the faeces. There were no protozoa, cellular exudate, blood, or mucus; no tubercle bacilli were found. The benzidine test showed no occult blood (on meat-free diet).

Sigmoidoscopy revealed no abnormality.

The fractional analysis of a test breakfast (oatmeal gruel) revealed no free hydrochloric acid, and a total acidity not exceeding 0.018 per cent. During an attack of vomiting, however, on May 15th, the vomitus showed 4.9 per cent. of lactic acid, with no free hydrochloric acid. An opaque meal revealed a high active stomach, with a normally acting intestine, empty in twenty-four hours.

No gall stones were found on a special examination. Loewi's mydriasis test was negative. The temperature was afebrile, and the pulse between 74 and 96.

On the presumption that the illness might be due to sprue of an unusual type, the patient was put to bed on a sprue diet (fat-free) and given calcium lactate gr. xx t.d.s. and parathyroid gr. 1/10 t.d.s. The only effect of this was to convert the diarrhoea into a most obstinate constipation—not relieved by fel bovin. gr. xv t.d.s.—which lasted until the patient's death, long after the sprue treatment had been discontinued. At no time (except when bile was being administered) did the stools show a trace of bile in any form, at no time was there any evidence of jaundice in skin, conjunctivae, or blood serum, nor did the urine show a sign of bile pigments or salts. On the supposition that the case might be due to syphilis a course of intravenous neosalvarsan (two injections of 0.15 gram at weekly intervals) was begun; but this provoked such intense headache, with albuminuria up to 1.7 grams per litre, that it was abandoned.

The patient's progress thereafter was steadily downhill, the liver began to increase in size, and his weight fell to 7 st. 10 lb. 8 oz. On August 8th he developed a lobar pneumonia which was practically afebrile throughout, the temperature rising to 100° F. during three days of the first week only. The respirations, on the other hand, rose to 56 and the pulse to 120. He died on September 2nd.

Post-mortem Examination.

At the autopsy, sixteen hours after death, *post-mortem* rigidity was present. The body was emaciated. There was no sign of jaundice in the skin.

Thorax.—There were no adhesions and no fluid in either pleura. The lining of the trachea and large bronchi was hyperaemic, and there was much viscid muco-purulent material. There was consolidation of both lobes of the left lung and of part of the lower lobe of the right lung. There was no sign of tuberculosis and no new growth. The heart weighed 13¾ oz. There was some hypertrophy of the muscle walls, which were soft. There was no change in the valves. There was no atheroma of the coronary arteries. There was some fatty change in the first part of the aorta.

Abdomen.—The stomach and duodenum showed no change of note. In the small and large intestines there were patches of hyperaemia but no other change of note. There was no evidence of dysentery. The pancreas, which weighed 1¾ oz., showed no naked-eye change. Attached to the tail by adhesions was a tumour about the size of a man's fist. This tumour, lying above the upper pole of the left kidney, was attached by adhesions to the spleen and to the transverse colon. The spleen was very firmly attached, and could only be separated by tearing away some of the splenic tissue. The left suprarenal could be definitely seen to be embedded in the tumour, characteristic suprarenal tissue being seen at the lower portion of the tumour. On the surface the tumour was nodular and on section it had a patchy yellow and dark red appearance with many cysts, some of which had well marked fibrous walls. The largest cyst was about 2¼ inches in diameter. Most of the cysts contained a dark brown "colloid" material, but the contents of the large cyst were of a slightly more fluid consistence. The right suprarenal showed no new growth or change of note. Along the left suprarenal vein were small new growths similar in appearance to the large one, but not cystic. The vein was greatly dilated and one of the growths with a diameter of three-eighths of an inch had budded into the vein and was attached to the intima. It did not occlude it, however. The kidneys showed little change of note to the naked eye, except slight enlargement of the left. The capsules stripped readily. There were no new growths in either. The right weighed 5¾ oz. and the left 7¼ oz. The liver was slightly enlarged. It weighed 3 lb. 13 oz. The change in appearance was very striking, looking like a very marked "nutmeg liver," the dark patches contrasting very markedly with the light fatty portions. There were no new growths present in the liver, and there was no indication of any abscess and no scarring. The gall bladder contained a little yellowish mucus.

Microscopic examination of the tumour showed at one portion the normal cortical portion of the suprarenal with practically no medulla; the tumour seemed to grow from one portion of the zona fasciculata, the cells near the suprarenal being in long pillars with increased fibrous tissue between the different acini. The cells had the appearance of polygonal epithelial cells, like liver cells,

characteristic of the middle zone of the suprarenal cortex. Further away the cells were arranged in round masses separated in places by a delicate stroma and wide capillaries filled with red blood corpuscles. At other parts of the tumour there was much fibrous tissue, and at places the tumour was undergoing mucoid degeneration with disappearance of the alveoli; at places it would appear that the cystic appearance was due to these degenerated areas surrounded by the thick fibrous tissue with haemorrhages. At one point there was much pigmentation and fibrous tissue as from an old haemorrhage. The bud growing in the vein showed round masses of cells similar to those in the large tumour. There was not much interstitial fibrous tissue in this growth, but the cell masses were separated by capillaries which were congested. Mitotic figures were not frequent and seemed to be fairly regular. The nuclei of most of the tumour cells contained well marked round nucleoli. (See Figs. 1 and 2 on Special Plate.)

The suprarenal of the right side showed microscopically little change of note.

The pancreas from the portion adjacent to the tumour showed the islets of Langerhans slightly disintegrated, the strand-like appearance of the cells being lost and the protoplasm of the cells diminished. There was little change in the nuclei of the cells and the alveoli of the pancreas were fairly well preserved. There was no invasion of the organ with new growth.

The spleen showed some fibrosis, and at places, especially where it was adjacent to the tumour, there was necrosis. At other places the organ looked oedematous and to have lost the arrangement of pulp sinuses.

The liver showed very advanced fatty change. In a paraffin section there were places where the appearance was that of adipose tissue with the large clear spaces from which the fat droplets had been dissolved. There was very little protoplasm left in some cells, but the cell nuclei showed up well. The reticulo-endothelial system seemed to be quite obliterated. This was the appearance of the peripheral and middle zone of the lobules. Round the central venule the degeneration was even more marked. There were no liver cells intact. There were only red cells, polymorphs, some nuclei, and dark brown pigment globules. The pigment did not give a blue reaction with potassium ferrocyanide and hydrochloric acid, but remained dark brown. Frozen sections stained with haemotoxylin and Scharlach R showed the adipose appearance very markedly, the large fat droplets quite obliterating the protoplasm of the liver cells, while round the central veins were the red cells and dark brown pigment granules. Sections stained by Langhans's method showed complete absence of glycogen.

The two remarkable findings at the autopsy were: (1) The occurrence of a true tumour of the suprarenal in contradistinction to the hypernephromata which are usually found to arise in the kidney. Budding of the tumour occurred to a slight degree in the neighbourhood of the tumour, but there were no metastases. (2) The fatty changes in the liver and the central degeneration of the lobules were as marked as those after chloroform poisoning, and greater than in any other condition in our experience.

Conclusions.

The clinical condition of the patient, the constant pain in the right hypochondrium—which at times was so severe as to suggest biliary colic—and the nature of the stools, all pointed to the liver being the primary seat of the disease; the site and comparatively small size of the tumour, the rigidity of the distended abdominal walls, and the fact that the patient never complained of pain or tenderness on the left side, all combined to mask the presence of the tumour.

We hazard the suggestion that from the first some poison must have been at work—possibly one secreted by the neoplasm—with a special selective action upon the hepatic parenchyma, and, to a less degree, on the spleen. The result of this was that the hepatic functions were almost suspended, the carbohydrate metabolism was disturbed, and possibly the haemolytic functions of the spleen were moderated; otherwise one would have expected at least some secondary anaemia in a man profoundly ill and cachectic for so long a period before his death.

PERFORATION OF THE KIDNEY BY A LARGE BRANCHED CALCULUS.

PERINEPHRIC ABSCESS: SEPTICAEMIA: DEATH.

(With Special Plate.)

BY

WILLIAM EVERETT, M.B., F.R.C.S.ED.,

SURGEON, BARRY HOSPITAL.

IT is well known that a large stone may rest in the kidney pelvis for many years with an almost total absence of any symptoms. The following case illustrates this very well, and I think it worthy of recording because of the unusual size of a branched phosphatic stone removed from the right kidney and of the clearly defined and interesting conditions found at the operation.

History.

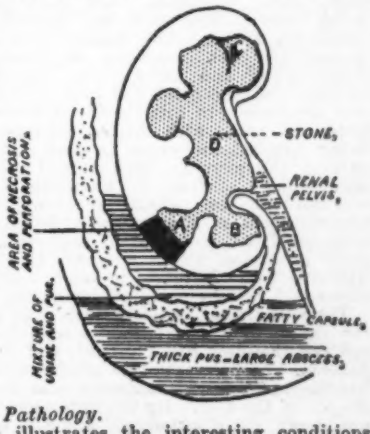
Mrs. K. M., aged 60, was admitted to hospital on September 26th, 1924, complaining of great pain across the back and over the right lumbar and hypogastric regions, accompanied by vomiting and diarrhoea. She stated that until six days previous to her admission she had been a very healthy woman, with hardly a day's illness in her life of sixty years. She had, however, suffered from time to time from bouts of flatulence, and when this occurred she had a dull aching pain in the back which disappeared after getting rid of the flatulence. A point, to which I at first did not pay much attention, but which might have an important bearing upon her illness, was that six weeks previous to the commencement of her illness she complained of a severe pain in her back after lifting a heavy bucket of water. On September 20th, she complained of general backache on getting up in the morning, which later in the day became more severe and settled down to the right of the spine. She felt ill and that night had a rigor and vomited. Vomiting occurred several times daily from the commencement of her illness. On the third day she complained of the pain spreading round to the front of the abdomen on the right side. On the fifth day she again had a rigor and diarrhoea began. The pain remained severe and gave her no rest that night. She called in Dr. Irving of Barry on the morning of the sixth day, who advised her removal to hospital. Careful investigation of her past life revealed no history of any haematuria, no colic or radiating pains, no frequency of micturition, and her water as far as she knew had always been clear. As stated above, there had been occasional dull lumbar pain associated with flatulence.

Examination.

The face was flushed, with marked pallor round the mouth, the tongue was furred and dry, and the breath was foul. Her temperature was 99.8°, the pulse 128 and of little volume. Her picture was that of general toxaemia. She was a big, well built woman. On examination of the abdomen there was a visible swelling of the right hypogastrium. On palpation a rounded, tender swelling the size of a large coco-nut, dull to percussion, could be felt filling the right hypogastrium, extending forward to the middle line and down into the right iliac fossa as far as the middle of Poupart's ligament, but here its lower border was ill defined and the fingers could not get below the tumour. The swelling could be pushed forward slightly with a hand placed posteriorly. In the absence of urinary symptoms the diagnosis was obscure, although it was thought that the swelling was renal in origin. The urine showed only a trace of pus, with no sign of blood.

Operation.

A general anaesthetic was administered by Dr. Neilson of Barry, and the abdomen opened in the region of the right semilunar line. Examination revealed a large kidney, bigger than a coco-nut, with a boggy fluctuating swelling below its lower pole extending to the brim of the pelvis. The peritoneum was again drawn together and was peeled off the anterior surface of the kidney, the ascending colon and caecum being displaced inwards and packed off with towels. A large, very foul abscess, smelling of *B. coli*, and of the consistency of thick cream, was opened into. There was oedema and induration of the surrounding cellular tissue and fat. The abscess, which was outside the fatty capsule of the kidney, and which extended inwards and downwards to the brim of the pelvis, was first of all swabbed up. The fatty capsule was greatly indurated, and on piercing it with the finger several ounces of urine and thin pus were evacuated. On palpating the enormous kidney, a hard body, presumably stone, could be felt in the upper pole. At the lower pole the finger encountered a soft necrotic area, about the size of a florin, through which a stone could easily be felt. The kidney was so indurated that the body of the large stone which was subsequently removed was not felt on palpation. In view of the critical condition of the patient, and of the superadded difficulties that would be met in removing such a kidney, it was decided to remove the stone by splitting the kidney in its long axis. Although it was found impossible to put a clamp upon the pedicle without grave danger to the major vessels, because of the matting and induration of the fat in the hilum, the kidney did not bleed much on section. The kidney substance was very indurated and grasped the stone firmly. Three of the dendritic processes broke from the body, and one was removed through the perforation in the lower pole. After extraction of the fragments the kidney was sutured in the usual manner. Ample drainage was provided, and intravenous and subcutaneous salines were administered before the patient left the theatre. She came out of her shock, but died on the evening of the third day following the operation, from septicaemia. A *post-mortem* examination was not obtained.



Pathology.

The accompanying sketch illustrates the interesting conditions found at the operation and suggests the pathological sequence. (1) Stone formation. (2) Infection and necrosis of kidney substance

in contact with dendritic process A. It is conceivable that with a stone of this weight and size a sudden jolt, such as may have taken place on lifting a heavy bucket of water six weeks previously, may have caused the dendrite A, which was sharper and more dependent than the others, to tear the lining of the calyx into which it fitted, and thus to have made an entrance for bacterial infection of the kidney substance. (3) Perforation of the kidney with leakage of urine and formation of abscess within the fatty capsule. (4) Extravasation beyond the fatty capsule with abscess formation and cellulitis of the posterior abdominal wall. (5) Septicaemia.

The photograph (see special plate) is a reduction of one showing the actual size of the stone. Its measurements are as follows: length 4¾ in., girth 3 in., circumference 12½ in., weight 1,202 grains (2¾ oz.). It consists of calcium phosphate.

Remarks.

It is instructive to recall with the pathological findings the history and the clinical picture. The total absence of any symptoms, excepting bouts of flatulence, although the stone must have been there for many years; the more acute onset of pain and rigor, corresponding with the invasion of the kidney substance by organisms, and final perforation brought about by the continual pressure of a heavy stone upon an infected and necrosing area; the extension of pain in the back to the anterior abdomen following the spread of infection in the perinephric and iliac cellular tissues; the symptoms of profound toxaemia, especially the vomiting and diarrhoea.

Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF MEASLES WITH MENINGISM AND SURGICAL EMPHYSEMA.

THE following case of measles, occurring in a child aged 2½, the daughter of a marine stationed at the Depot, Royal Marines, Deal, seems to be worth recording on account of its unusual complications.

After coryza and general malaise for about four days the child became covered with a typical and extremely well marked measles rash; Koplik's spots were present on the gums; the temperature was 102° F., there was slight tonsillar enlargement, and sibilant bronchi were scattered over both lungs. On the following day there was practically no change in the child's condition or in the physical signs, but by the third day her state had become much worse. The temperature was 104°, the respirations 70, and well marked patches of bronchopneumonia were present in both lungs. Persistent cough was present with considerable cyanosis, and symptoms of acute laryngitis were rapidly becoming manifest. Owing to the length of time before the result of a bacteriological examination could be obtained, and in view of the possibility of the laryngitis being diphtheritic, 4,000 units of antitoxin were given at once. Within a few hours there was a distinct improvement in the child's general condition, the temperature had dropped to 99.4° F., and the laryngitis had much improved. The lung condition was unaltered, however, and dyspnoea was still severe.

About this time a general puffiness of the skin of the neck was noticed, which rapidly extended up to the cheeks. On palpation crackling was readily elicited, and suggested surgical emphysema. During the next few days the condition became progressively aggravated until there was marked oedema over the head, neck, chest, abdomen, back, and upper extremities, the skin being raised from half an inch to an inch from the subcutaneous tissues. The patient's condition remained unchanged during the two following days, the temperature fluctuating between 100° and 103° F. The next day I was informed by the parents that the child had been extremely restless all night, and was apparently in great pain. I found marked retraction of the head and neck, with intense photophobia and opisthotonos. On being touched anywhere in the region of the skull the child uttered the piercing, high-pitched meningeal cry. Kernig's sign was strongly marked, no knee-jerks could be elicited, and there was no response to plantar stimulation. The child was semi-conscious, the respirations were 70, and the pulse was practically imperceptible. I decided to perform a lumbar puncture, and the same afternoon withdrew about 15 c.cm. of cerebro-spinal fluid. This was under increased pressure, and was slightly turbid. It was forwarded to a pathological laboratory for examination.

The withdrawal of this fluid had an almost immediate effect: by the same night the patient's condition had definitely improved, full consciousness had returned, and she was able to recognize her parents. The pain appeared much less, and the child did not resent handling. Plantar stimulation was followed by attempted withdrawal of the foot. By the next morning nearly all the meningeal symptoms had disappeared, and the temperature had dropped to 99° F. From this time on the patient rapidly improved and the lung condition began to subside. Within four days the temperature became normal, and the respirations had dropped to 24. The child is now convalescent and doing well, though slightly irritable in temper. No organisms were recovered from the cerebro-spinal fluid, and a swab from the tonsils was negative for the Klebs-Loeffler bacillus.

With regard to the meningitis, a similar case is reported by Fica[1] in a girl aged 16, but in this case the cerebro-spinal fluid showed no turbidity. I have no explanation of the emphysema to offer, and can only submit the hypothesis that rupture of some air vesicles occurred through constant coughing, permitting air to escape via the anterior mediastinum to the subcutaneous tissues.

I am indebted to the Medical Director-General of the Royal Navy for permission to publish the details of this case.

R. W. NESBITT, M.B.,
Surgeon Lieutenant-Commander, R.N.

Royal Marine Infirmary, Deal.

CONGENITAL MALFORMATION OF THE DIAPHRAGM.

THE following case illustrates what is, I believe, a very rare condition, and therefore seems to be worthy of record. I recently performed a necropsy on a male infant 11 days old. Its weight at birth was 4 lb. The parents were young and healthy. The child was apparently well nourished; it had been breast-fed and was slowly gaining weight. It had not been examined by a medical practitioner. I found the right lung normal and the heart in the middle of the chest; the left side of the chest contained about half a pint of clear fluid and the left lung was undeveloped. There was a large bulge of about 18 in. of the transverse colon into the lower part of the left side of the chest, above the diaphragm, and pressing against the heart. Several coils of the small intestine were also situated in the chest behind the colon. I found a large, well defined opening in the diaphragm behind the spleen and just in front of the left kidney; it admitted four fingers. There was apparently no strangulation, since the intestines moved freely in and out of the chest through the opening.

J. GUNN MCLANNAHAN, L.R.C.P. and S.I.
Stonehouse, Gloucestershire.

TREATMENT OF PSORIASIS BY PARATHYROID EXTRACT.

IN the BRITISH MEDICAL JOURNAL of April 26th, 1924 (p. 772), there was a note by Dr. Claude Wilson on the treatment of psoriasis by parathyroid extract. I was particularly interested as I have a patient, a man aged 40, who has suffered from psoriasis since the age of 8 years. Various forms of treatment have been used without success. Chrysarobin, however, has never been tried, owing to the fact that the patient is unable to spare the time from his professional duties. He has noticed that from October to March in each year he is more or less free from the condition, whereas from April to September it is always with him.

Treatment by parathyroid extract was commenced on May 1st and continued until the end of August. The dose was 1/10 grain daily. I regret to say that there was no amelioration in the condition. There was no decrease in the number of lesions, which became redder and more irritable. Large crusts formed on the scalp to a much greater extent than ever before.

I am not suggesting that the disease was aggravated by the treatment, but I could not help feeling disappointed in view of Dr. Wilson's optimistic note.

A. S. HENDRIE, M.B.
Holt, Norfolk.

OVARIAN CYST COMPLICATING LABOUR.

A GOOD many years ago I saw in consultation a primipara who, some days before, had been delivered after a difficult forceps operation. When I saw her the abdomen was distended and she was obviously very ill. The perineum was ruptured into the rectum, from which hung the septic remains of an ovarian cyst wall. The fingers in the vagina passed straight into the abdomen, among the bowels behind the uterus.

I opened the abdomen at once, removed the remains of the cyst, and drained both through the abdominal wall and vagina, after repairing the rent in the recto-vaginal

[1] *Gaz. degli Osped.*, 1923, 464.

septum. The patient rallied from the operation, but died some days later from septic peritonitis.

This case, like that reported by Dr. Gordon Taylor in your issue of December 6th, 1924, emphasizes the necessity of ascertaining the cause of delay before resorting to forceps. With an anaesthetized patient one may easily invoke the catastrophe of Dr. Gordon Taylor's and my own case.

Penrhyn Bay, Llandudno. NORMAN PORRITT.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

CAMBRIDGE AND HUNTINGDON BRANCH.

AN APPARENT CASE OF HOUR-GLASS STOMACH.

AT a combined meeting of the Cambridge Medical Society and the Cambridge and Huntingdon Branch of the British Medical Association, held at Addenbrooke's Hospital on December 5th, 1924, the following notes on a case of apparent hour-glass stomach were contributed by the President, Dr. J. R. GARROOD.

The congenital form of hour-glass stomach, which this case resembles, is referred to in the textbooks, but on examining the literature it appears to be a vanishing condition, due, I think, to more accurate diagnosis.

Saake (1896),[1] in the case of a female aged 67, states that the hour-glass contraction was obviously of congenital origin, while in the pyloric portion a large cancerous growth was discovered.

Rokitanski (1859)[2] mentions rare congenital malformations in which an annular contraction divides the stomach into a cardiac and pyloric portion or into three or four sacculated divisions.

C. F. Martin (1908)[3] thinks that in the specimen in McGill Museum from an infant the condition is so marked as to leave no room for any conclusion but that it is congenital; but, speaking of pylorospasm, he states that fixation in the contracted condition may take place at death in one phase of digestion.

Adami and McCrae (1914)[4] mention occasional cases of congenital hypertrophy of the mid zone of muscle, but Moynihan denies the existence of the condition.

The specimen here described was taken from the body of a male child which lived seven weeks. The mother was 47 years old; the labour was uncomplicated. The patient was the eighth child (the other children are normal); he weighed 7 lb. at birth and was breast-fed; he cried a good deal and vomited from the first; no treatment benefited him. The amount of vomit was estimated to be about as much as he took; it was yellow or brown; he also brought up wind which was offensive.

After the meconium but little faeces was passed, and that which came was described as looking like a worm; not much urine was passed. The upper abdomen was rather swollen. The patient wasted and died in seven weeks. On opening the abdomen a reversed S (2) shaped organ appeared, and apparently consisted of a double stomach. The upper and right limb of the 2 was directed backwards, its plane being nearly at right angles to the lower curve.

I removed the stomach and intestines, and wish now I had taken the liver and pancreas as well. On opening the organ both cavities were found to contain milk. The opening between the two admitted a wooden match. The cavities were of about the same size, and I thought I had a perfectly good hour-glass stomach. I removed a small piece of tissue from the junction piece, sections from which were examined under the microscope.

On further consideration I have come to the conclusion that the second sac is really the first and second parts of the duodenum, for the entrance to the common bile duct is found in it. The microscopical structure at the point of junction of the two sacs is similar to that at the pylorus, as is the macroscopic appearance, while the lower end of the second sac has no resemblance to it. If this is so, we have a dilated and hypertrophied duodenum brought about by an almost complete occlusion just below the entrance of the bile duct. This could not have been complete, for the infant lived seven weeks, but was very nearly so, as the patient starved to death, and the intestines are nearly empty; presumably seven weeks, even under bad conditions of nourishment, was sufficient time for the enlargement to take place.

In Green's *Encyclopedia*[5] it is stated that duodenal occlusion occurs just above the entrance to the bile duct, and is due either to a membrane or to gradual narrowing. The vomit is not bile-stained, the bowels act several times after birth, and death occurs in one to eleven days. Obviously the occlusion in my case does not quite correspond with this account.

The specimen shows a stomach 14 cm. along its greatest curvature, with walls from 2 to 3 mm. thick, and, I believe, a normal pylorus—at all events it was patent, and the second cavity contained milk. This is followed by a sac 8.5 cm. along its greatest curvature, with walls of the same thickness as the stomach. They show plicae circulares within, and there is no mesentery; a bristle has been passed through a short piece of the portal vein behind. At the intestinal end of this sac is a transverse partition, and on the upper surface of this is a small opening, which on passing a bristle is found to lead to a vessel which I believe to be the common bile duct. The first part of the duct passes in the wall of the septum, and was so thin that it broke away, but the track can be seen in its substance beneath the bristle. A narrow opening can be made out in the septum near the posterior and inner wall. The intestine which immediately succeeds this partition appears quite normal. The sections show the thickened portion at the pylorus followed by the thinner first part of the second sac or duodenum. There is a gradual transition from pyloric glands to Brunner's glands and villi; the difference between these is never very marked, and I suppose would be even less obvious in an infant.

[1] Saake (1896): *Med. Annual*, 1896, p. 539.
[2] Rokitanski (1859): *Path. Anat.*, Syd. Soc., p. 23.
[3] C. F. Martin (1908): Osler's *Modern Medicine*, vol. v, pp. 203 and 304.
[4] Adami and McCrae (1914): *Textbook of Pathology*, p. 626.
[5] Green's *Encyclopedia of Medicine and Surgery*, vol. 4, p. 513.

Reports of Societies.

RHEUMATOID ARTHRITIS.

AT meetings of the Royal Medico-Chirurgical Society of Glasgow on December 5th and 12th, 1924, the President, Professor ARCHIBALD YOUNG, in the chair, a discussion was held on rheumatoid arthritis.

Professor R. STOCKMAN described rheumatoid arthritis as being probably a group of closely allied microbic diseases, such as chronic articular rheumatism, chronic rheumatic arthritis, chronic fibrous rheumatism, chronic villous polyarthritis, nodose rheumatism, rheumatic gout, atrophic arthritis, Still's disease, and chronic infectious arthritis. The clinical course and morbid anatomy marked it as a bacterial infection of low virulence, but of extreme chronicity. As a rule, no organism could be found in the areas affected or in the blood, but in a very small number of cases bacilli, diplobacilli, cocci, diplococci, and streptococci had been isolated from the joints. There were probably several different causal organisms, and this belief was supported by the considerable clinical and anatomical differences in individual cases. Whether all cases were due to the same organism or to various different organisms the broad results for the patient were the same. The white fibrous tissues of the locomotory system of the body were the sites of attack, and essentially and in the beginning the disease was a fibrositis, with proliferation and increase of the affected fibrous tissue structures. There was never any suppuration or local emigration of polymorphous leucocytes. Chronic hydrarthrosis of one joint was probably its mildest form, and from this there were all grades of severity up to polyarthritis with high fever. The disease usually began insidiously in the small joints and progressed with little constitutional disturbance; less often it began in the large joints with more acute systemic symptoms. Ultimately in all cases it presented the general clinical aspect of a low chronic septic infection. It must be regarded as a very general infection and not merely as an arthritis. In all cases the fibrous tissue of the muscle, aponeuroses, fasciae, and panniculus adiposus were more or less deeply involved and inflamed. In the joints the fibrous tissue of the synovial membrane and capsule were primarily affected. The cartilage and bone were not primarily involved, but as the influence of disuse, muscular contractures, and other changes came into play the bone became thinned and atrophied, the cartilage rough or ulcerated, the fibrous capsule contracted and hardened, and ultimately a fibrous or a bony ankylosis might result.

The focus of infection could only very rarely be identified with certainty. It was possible that in many cases the original focus had disappeared before the patient came under observation, and one joint might remain as a reservoir

of infection after others had ceased to show active signs. Tonsillitis, boils, septic sores, pyorrhoea, chronic pulmonary or intestinal conditions, and so on, had been blamed, and the association of various skin conditions, such as psoriasis, had been noted. The various methods of treatment, both local and general, were then described. In speaking of the protein shock treatment, Professor Stockman believed that in most early cases the method was capable of cutting short the infection. The later symptoms and changes which followed as a result of the fibrositis were referred to, and the necessity for vigorous treatment by massage, movements, baths, and appropriate exercises was urged—anything rather than rest. Treatment must be directed (1) to restore movement in the joints by elongating the contracted muscles and shortening the elongated ones so that they might regain their normal action; (2) to get rid of the fibrositis in and around the joints, and to stretch and render more pliable their ligamentous tissues and adhesions; and (3) to increase the bulk and strength of the muscles. For the most part the stretching and movements could be done manually, but the assistance of splints was desirable in many cases. Forcible extension under an anaesthetic was to be avoided, but in certain instances the mobility or otherwise of a joint could be more easily tested under chloroform. The fixation of a joint in plaster or splints for more than a few days was very inadvisable owing to the risk of immobility occurring.

Dr. DAVID CAMPBELL related the results of the treatment of rheumatoid arthritis, and described the technique he had employed in the treatment of 100 cases from 1921 to the present date. Of 70 cases treated up to November, 1923, 58 derived great benefit, both directly from diminution of pain and tenderness in the joints, and also indirectly from the consequent greater facility with which more effective local treatment by heat and massage could be carried out. The maximum benefit was obtained in those cases which had started acutely and with involvement of many joints. Of the 12 cases which showed no improvement, 4 were of long standing in which the disease process had become inactive. Seven patients reacted to each injection, but the infection remained active. Of the 50 patients improved by the treatment, 40 had, during periods varying from one to three and a half years, been able to perform all their ordinary duties; with no exacerbation of the joint conditions or spread of the disease to other joints. In 16 cases in which relapse had taken place a fairly advanced stage of the disease had been reached before treatment was started, while in several the treatment had been discontinued after two or three injections, owing to the great improvement shown. The advisability was considered of continuing the injections after the active process had apparently ceased. In conclusion, Dr. Campbell expressed the opinion that, while protein shock therapy could not be regarded as ideal, it offered greater probability of success than any other known methods.

Mr. JAMES RUSSELL, discussing the surgical treatment of arthritic conditions, referred to the various deformities which might result from these diseases. He strongly deprecated operative treatment based on *x*-ray appearances alone, and insisted that surgical interference could be justified only where improved functional value of the limb was likely to be attained thereby. The fundamental question was function, and mere deformity as such should not be allowed to assume undue importance. The commoner deformities of the various joints were then described and the methods employed for their prevention discussed. Various splints were shown and the method of their use demonstrated. It was pointed out that the splints should be such that they could easily be removed for massage and other local treatment. In the acute stage of the disease there was a limit to the patient's tolerance of treatment, and in such cases the skill and judgement of the surgeon might be taxed to the utmost. Once deformity had developed, any forcible movement was sure to be harmful, but gradual stretching by weights or splints could overcome many of these early contractures. In conclusion, Mr. Russell urged the necessity of physicians and surgeons appreciating the value of posture during the acute stage of the illness, and splintage in the prevention and control of deformity.

Dr. W. S. SYME referred to the difficulty of finding a focus of infection, and urged that the examination of the throat and nose should be more strict than was commonly the case. For example, it was often the most innocent-looking tonsil which showed the greatest degree of infection in the crypts when a thorough examination was made by pressing forwards the pillars and projecting the tonsil towards the observer. With nasal infection even more care was required to demonstrate the freedom from infection of the various sinuses. In some cases where generalized infection had occurred removal of the primary focus did not afford relief, probably because secondary foci were then equally fertile as sources of infection.

Dr. J. N. CRUICKSHANK referred to the herpes occasionally observed after protein shock therapy. He described six cases in which severe herpes of the mouth and lips and surrounding area of skin had occurred. Subsequent injection of a fresh vaccine from the same stock was again followed by herpes. One patient had been treated by a vaccine from a different stock without the appearance of herpes. When treated by the vaccine which produced herpes in the other patients he also suffered in the same way. These facts suggested the need for care in selecting a suitable stock vaccine.

Dr. HOWIE mentioned the importance of focal infection in rheumatoid arthritis and allied conditions.

Dr. MARION GILCHRIST referred to the difficulties in the treatment of rheumatoid arthritis and the problem of individual resistance to such infections. Vigorous application of all measures calculated to raise the patient's general resistance was essential. In the prevention of deformities and limited function movement was important. Pain was a difficult symptom to treat, and in several instances she had found local *x*-ray treatment of much benefit in its relief. She wished particularly to emphasize the importance of treating the mental attitude of the patient.

Dr. G. H. CLARK had found that a dressing of methyl salicylate and carbolic oil with the application of heat gave in some cases a much better effect than heat alone. He had also obtained better results in some cases with the Greville bath than with ordinary radiant heat.

HEADACHE.

A DISCUSSION on headache took place at the meeting of the Hunterian Society on December 15th, 1924. Mr. H. W. CARSON presided.

Dr. C. O. HAWTHORNE, in opening the subject from the medical side, said that headache was a symptom which demanded a large exercise of care and judgement in the field of differential diagnosis. It existed as a clinical expression of numerous and varied pathological states, and it differed widely in different cases both in its degree and its significance. Nothing could be worse in practice than to regard the complaint of headache as an opportunity of prescribing one or other of the various remedies which had therapeutic value in this direction. To rest content with the temporary benefits which many of these remedies were able to afford might be to relieve the pain, but it would be essentially to neglect the patient. Among conditions of which headache might be an early or the earliest symptom, he mentioned chronic renal disease and also what was commonly spoken of as high blood pressure. He would suggest that the most prompt and efficacious remedial measure to apply in these cases was blood-letting, either by venesection or the application of leeches to the temple. Again, everyone would admit that headache might be the sole symptom of tumour of the brain. He urged that every patient with headache should be examined by the ophthalmoscope for changes in the fundus oculi. This examination should be repeated at frequent intervals to secure diagnostic safety. He believed the ophthalmoscope to be a necessary part of the equipment for every clinical examination. There were other intracranial changes which might be manifested by headache, prominent among them the various forms of intracranial syphilis, and again of meningitis. In each of these conditions there were other symptoms, but headache

might be early and predominating. It was therefore necessary to stress another method of examination—that of lumbar puncture and examination of the cerebro-spinal fluid. In obstinate and severe headache for which no obvious explanation could be obtained it was just as necessary to examine the cerebro-spinal fluid as to examine the fundus oculi. As local causes of headache—occurring, he admitted, rarely, but not to be neglected—he mentioned suppuration in the intranasal sinus, and tabes dorsalis. He then went on to speak of eye-strain as one of the causes of headache. Whether migraine was always due to ocular defects, and was capable of being cured by correction of those defects, he could not say, but no one having a patient suffering from migraine would think of leaving any refractive defect uncorrected. He wondered whether anyone had had the courage to treat an acute attack of migraine by lumbar puncture. It was certain that post-epileptic headache could be relieved by this method, and he would like to see what would happen if the puncture were made at the earliest possible moment in migraine. There still remained headaches for which an explanation had to be found, some of them due to anaemia, some to calcium defect. Another group was associated with gastro-intestinal disturbances. The headache due to bad temper had to be reckoned with, and also the "diplomatic" headache, which was of such great value both in politics and society.

Mr. WILFRED TROTTER spoke on the surgical aspect. There were certain varieties of pain in the head which could by a little inquiry be dismissed from the category of headache. In the headache complained of by the neurotic patient there was a quality which placed it apart; the patient, if questioned, would say that it was not pain but a queer and indescribable sensation. In another class of headache the sensation was like that produced in characteristic trigeminal neuralgia—bouts of pain of agonizing intensity, which the patient invariably compared to puncture with a red-hot needle. A third group was the headache associated with disease of the nasal sinuses. One of the characteristics of the pain under these conditions was its liability to come on at the same time on successive days. Then there was headache associated with definite cranial abnormality, the characteristic of which was severe pain more often in the anterior part of the head than the posterior, particularly behind the eyes, of a throbbing character, and intensified by anything which stimulated the circulation or altered the intracranial tension. Finally there were headaches in connexion with injury to the head. A patient who had received a severe injury to the head was particularly liable to develop severe and disabling headaches, brought on by slight mental anxiety, bright lights, or loud noises. In this headache one must not expect to get any neurological signs whatever. All the signs that Dr. Hawthorne had mentioned would probably be negative. The characteristic feature was the clinical aspect of the case. With regard to the surgical treatment of these cases, it was only necessary to realize that they were due to the bruising of the brain, which was the only organ of the body to have any serious difficulty in recovering from a simple bruise. The one great means of relief was rest in bed, and afterwards, on any sign of relapse or recurrence, the patient should be sent back to bed again. If the headache was persistent and recurrent a simple decompression operation would bring it to an end.

Dr. BERNARD HART dealt with the psychological aspects of headache. He referred to the surprising variability in localization and quality of the headaches in the psychoneuroses. There was no question that a great many conditions which these patients described as headache were not headache in the real sense of the word, but it was necessary to distinguish three types—actual pain headaches, paraesthesia, and the type of headache which denoted not so much pain as great mental disturbance, or, as the patient sometimes expressed it, the feeling that he was standing on his head. A certain number of headaches which occurred in neurasthenic conditions were produced by a mechanism identical with that which produced ordinary headaches, save that the initial link in the chain of causation was a psychological factor. Other headaches, however, might be produced entirely psychogenetically. Of these the first subgroup would be those produced by suggestion. When patients described themselves as suffering from "helmet" and other classical headaches it might be taken for granted that they had been assiduously studying the literature of the subject. There was also "preoccupation headache," cases in which at one time a general headache occurred which had subsequently become the subject of a psychological preoccupation. Another form was the "projection of incapacity headache," in which the patient, suffering from the typical disability of many neurasthenics, projected his feeling of incapacity into his head, and expressed it as a headache. These distinctions were of practical importance if treatment was to be reasonably founded.

Dr. FIELDEN BRIGGS discussed the dental aspects of the question. He mentioned that the late Sir Lauder Brunton never approached a case of headache without first examining the teeth. Headaches caused by the teeth came under two heads—reflex and toxic. Sir J. DUNDAS-GRANT, while supporting Dr. Hawthorne's view as to the necessity of ophthalmoscopic examination, thought that Dr. Hawthorne had rather underrated the difficulties of the practitioner who was not specially skilled in this form of examination in interpreting properly what he saw. Dr. SYMONDS spoke of headaches due to neuritis of the scalp and—a much rarer cause—disease of the cranium. The former was usually distinguishable from other headaches by the hyperaesthesia of the scalp. Mr. PHILIP FRANKLIN said that most of the headaches which they met with in practice were not really very serious, and those which were serious had usually other symptoms associated with them which gave a clue. The nose specialist had frequently to observe post-operative headaches. Interference with the bone of the nose was a very important factor in causation. Dr. W. H. KELSON advocated the use of the post-nasal mirror in dealing with headaches arising possibly from nasal trouble. Dr. F. HOWARD HUMPHRIS said that high blood pressure and low blood pressure headache were both amenable to electrical treatment. Migraine was amenable to diathermy, and calcium deficiency headache to artificial sunlight.

Dr. HAWTHORNE replied on the matter of the ophthalmoscope. He granted that interpretation was difficult, but observation must necessarily precede interpretation, and the persons who accustomed themselves to regular observation were the persons, after all, who would make themselves expert in interpretation.

MULTIPLE POLYPOSIS OF THE COLON.

AT a meeting of the Surgical Section of the Royal Academy of Medicine in Ireland, held on December 12th, 1924, Mr. R. C. B. MAUNSELL in the chair, Sir WILLIAM I. DE COURCY WHEELER read a paper on a case of multiple polyposis of the colon, the specimen and lantern slides of it being shown by Dr. O'FARRELL.

Sir William Wheeler referred to the literature on the subject which connected the condition with chronic ulcerative colitis. The ulcerative process was of such a character that portions of the mucosa and submucosa adjacent to the primary arterial branches were preserved, and these portions remained as ragged tags scattered over the surface of the colon. In a later stage of the disease the orifices of certain of the tubules between the polypi became occluded and retention cysts were formed, which gave rise to the name—colitis polyposa cystica. He thought that the distinction made between adenomata, papillomata, and true polypi in the class of case under review was unnecessary; one condition was probably only a stage in the development of the other. Multiple polypi in the stomach were not very rare, and they were not infrequently found in the caecum and the rectum. A few isolated cases of polypi of the small intestine had been described, and all authorities were agreed that multiple polyposis of the colon was potentially extremely malignant.

The patient in this case was a woman, aged 26, who had been admitted to hospital with a long history of constipation, followed more recently by diarrhoea with the passage of blood and pus. Her temperature ranged from 99° to 101° F. A tumour was detected in the line of the descending colon, and hyperirritability and hypermotility of the colon were observed by the radiologist. When the abdomen was opened in the first instance, the wall of the colon from the caecum to the pelvic colon was found to be rigid, infiltrated, and hyperaemic: it gave the impression that if it were bent

unduly it would break. The condition of the colon recalled the condition found in cases of "leather-bottle" stomach: septic inflammation of the mucous membrane was found. A short circuit between the ileum and the rectum was made, and the operation completed by an appendicostomy. Six months later she was again admitted to hospital: she had been free from haemorrhage for four months, but it had then recurred and the tumour could still be felt. The abdomen was again opened and the entire colon removed to the line of the original anastomosis; a tube was passed through the rectum into the small intestine. The patient died on the third day, apparently from peritonitis, but an autopsy was refused. An hour before death there was copious drainage through the tube, with a cessation of vomiting, but this appeared to come just too late for recovery in a case which was a bad surgical risk. The colon weighed 2½ lb., and was covered with myriads of polypi from the caecum to the pelvic colon. The caecum itself was free from polypi, as was the pelvic colon, which was thought to be an unusual line of demarcation.

Mr. MACAULEY referred to the help obtained in these cases by means of a barium enema. He had recently had a patient, a woman aged about 53, who complained of bleeding from the rectum; he had suspected malignant disease. The bleeding was too severe to make a satisfactory sigmoidoscope examination, and no information was obtained from a rectal examination. A barium enema was given, and the radiologist reported that the signs were characteristic of colitis, evidence of obstruction being absent. At operation the wall of the colon felt indurated, friable, and stiff, as described by Sir W. Wheeler. The abdomen was then closed, and the patient had since reported herself as doing well.

The PRESIDENT and Mr. A. CHANCE joined in the discussion.

Perthes's Disease.

Mr. H. F. MACAULEY read a paper on Perthes's disease, and showed lantern slides. He demonstrated the radiographic appearances of the upper femoral epiphysis, and showed the persistent progress of this disease, even under prolonged treatment by immobilization and traction. In some cases there was a very definite traumatic history; in others there had been a spontaneous onset, attributable to bacterial or toxic causes. He then discussed briefly the symptoms of the disease in the acute phase, when it was likely to be mistaken for tuberculosis of the hip, and in the latter quiescent stage. The remainder of the paper was mainly concerned with a discussion of the prevalent views on the etiology of the condition, with particular reference to Jansen's theory. Mr. MacAuley believed all the theories were partly true, some applying to some cases and others to the remainder; he did not believe any one theory accounted for all the cases of this malady, which might be due to very different causes. He endeavoured to show how the theories could be corrected, and how trauma, infection, and want of joint balance could all be used to explain the epiphyseal changes. Regarding treatment, he advised immobilization and traction with the limb abducted during the acute phase, and the subsequent use of a walking calliper until the fragments became reunited, which would be about one year later. Though he believed treatment was without effect on the evolution of the epiphyseal changes, he thought it prevented prolongation of the acute stage, and possibly subsequent abduction deformity.

Mr. H. STOKES referred to a case of Perthes's disease, associated with Schlatter's and Köhler's diseases, and he believed that this condition suggested a nutritional cause. Dr. T. J. D. LANE thought it possible that there was some connexion between Perthes's and Köhler's diseases. The condition was, radiologically, very similar, and the prognosis in both diseases was the same—namely, the condition generally healed up with or without treatment. Dr. T. T. O'FARRELL said that it was a matter of great importance in connexion with child hygiene to know what symptoms of Perthes's disease should be looked for first, also to know what could be done by way of prevention. He did not think that the disease could be due to injury. Dr. P. DE BURGH thought that a bacteriological examination of the urine should be made as a routine measure, since it would thus be possible to find out whether the child was suffering from bacterial poisoning or not. He also suggested a complete investigation of the endocrine secretions. Dr. W. STEVENSON believed the deformity of the head of the bone in these cases was caused by the pressure of the muscles, and he thought that, in addition to rest in bed and weight bearing, traction might lessen the fragmentation.

DISEASES OF ADOLESCENCE.

A MEETING of the Chelsea Clinical Society was held on December 16th, 1924, Dr. GORDON LANE in the chair.

Dr. THEODORE THOMPSON discussed the subject of disease in adolescence, and drew attention to the mental, bodily, and sexual changes which occurred at this period of life. The chief mental abnormalities were epilepsy and hysteria, and he also mentioned dementia praecox. On the physical side he also drew attention to the influence of heredity, climate, and the surrounding temperature. He gave an interesting account of the supposed functions of the ductless glands. With reference to the questions of vice and masturbation, he insisted on the duty of parents and schoolmasters to deal boldly with them. As regards actual disease Dr. Thompson remarked that growing organs were apparently more liable to disease than parts which were not growing. He instanced the effect of rheumatism upon the growing heart, and the incidence of phthisis upon the developing areas of the lungs.

Mr. IVOR BACK emphasized the surgical aspect of disease in the adolescent. He believed that much surgical tuberculosis was bovine in origin, and stated that the cows in one European country were all tuberculous. Tuberculous lymphatic glands in the neck were always more numerous than could actually be felt, and he advocated their treatment by artificial sunlight. He thought that it was dangerous to attempt the surgical removal of tuberculous mesenteric glands. He also laid stress upon the hopelessness of trying to remove sarcoma of bones even by amputation.

Dr. CREWDSON THOMAS believed the path of infection of tuberculous cervical glands lay through the tonsils. Dr. ERIC PRITCHARD drew attention to the prevalence of subacute appendicitis and enteritis in adolescents, and to the good effect which ultra-violet rays had upon the general health at this period. Dr. ERNEST YOUNG, Mr. GAYMER JONES, and Mr. A. T. ROGERS spoke favourably of the results of sunlight and of deep *x* rays in the treatment of certain bone lesions. Dr. GORDON LANE referred to the hereditary tendencies which might be first manifested at the period under discussion. He was a firm believer in the treatment of malignant disease with radium and deep *x* rays.

THE PATHOLOGY OF DISEASE OF THE THYROID.

AT a meeting of the Liverpool Medical Institution on December 18th, 1924, Dr. G. SCOTT WILLIAMSON discussed the pathological basis of symptoms in thyroid disease.

Dr. Williamson first described the new conception of the anatomy of the thyroid apparatus, and then proceeded to detail the two cycles of function, colloid storage and true secretion. The process of the storage of colloid was discussed in detail, and the typical disorders affecting this function were considered. The most significant fact in this connexion was the existence of two distinct types of endemic goitre, of which the vesicular goitre alone represented a pure disturbance of the "colloid" function. This goitre occurred as a sporadic affection, and it was noted that in the sporadic variety thirty-two out of thirty-eight cases occurred in males at puberty. McCarrison was cited as having succeeded in producing this form of goitre by overfeeding with calcium. This was contrasted with the results of iodine and protein experiments, which resulted in a true hypertrophic enlargement. Attention was called to the necessity of further study being given to the endemic goitres before adopting a wholesale treatment in goitrous zones. A therapeutic suggestion was that calcium medication might be used to supplement iodine treatment in dealing with goitres. Secretory disturbances were shown to have a very clear-cut histopathology. The so-called hyperthyroidisms were disturbances of the secretory function, and were essentially dystrophic states. Thus in this connexion two types of dysthyroidism arose—Graves's disease at one extreme, and myxoedema at the other, or alternating with each other. Graves's disease was shown to arise as a primary condition with a definite histopathology, of which the additional factor was

A-colloidism. Secondary Graves's disease usually presented an intoxication symptom first, which was followed by an exophthalmic train of symptoms. Though the gland in secondary Graves's disease contained colloid, the colloid was ineffective in that it was encysted. Toxic goitre, so called, was a simple dysthyroidism and had the same basic pathology as secondary Graves's disease, except that the colloid was still circulating while secretory activity in some areas was producing stored secretion which was viciously absorbed. Clinically the disturbance was best brought out in the history, and if Plummer's therapeutic iodine test was applied; primary Graves's disease was peculiar in manifesting a need for iodine, whereas simple dysthyroidism (toxic goitre) and secondary Graves's disease were made worse by this administration. This distinction was demanded by the histopathology of the condition. Myxoedema was shown to have a very definite histopathology. It was clearly not a simple atrophy, but a disease *sui generis*, and essentially a dysthyroidism of a distinct order. Perhaps the insufficiency of thyroid medication in myxoedema might be explained in this way. Dr. Scott Williamson emphasized the need of remembering that each individual was a law unto himself as to the amount of thyroid activity needed by his physiology. Such goitres as those occurring during puberty, menstruation, and pregnancy were not to be looked on as pathological, since they all exhibited only a simple hypertrophy. Disease also gave rise to hypertrophy, and of the greatest importance was the hypertrophy associated with status lymphaticus. This association accounted for nearly all the sudden deaths in goitre. Since secondary Graves's disease or simple dysthyroidism arose as a sequel of hypertrophy, it became necessary for the surgeon to exclude carefully status lymphaticus in all cases of goitre, no matter what were the train of symptoms; this was emphatically necessary up to the age of 25 years in men and women. Primary Graves's disease was shown to have a peculiar thymus condition, differing from that of status lymphaticus.

Dr. A. C. WILSON was not satisfied that surgery was the only remedy for exophthalmic goitre. For twelve years he had used *B. coli* vaccines in shock doses with good results; he had treated eighteen cases of exophthalmic goitre, including two or three desperate cases, with success. In his experience the vaccine had not the same value in simple goitre. Two recent cases were of interest: a lady with exophthalmic goitre who had tried several other treatments, including *x* rays, was cured by six injections, and in twelve months gained two stone in weight. A spaniel dog with a simple goitre the size of a lemon was cured by two injections, all signs clearing up in eight weeks. The dose of *B. coli* used was 500 million.

Dr. N. B. CAPON described three cases of congenital goitre in newly born infants. Severe dyspnoea was a prominent symptom in two of the cases.

Professor BLAIR BELL said that his own interest in the thyroid had been both philosophical and practical. His experimental work had shown that the thyroid, in association with the rest of the hormonopoietic system, was directly related, not only with the individual metabolism, but also with the reproductive. He laid stress on the necessity of a considerable knowledge of comparative anatomy and physiology in interpreting the nature, variations, and disorders of organs of internal secretion. He referred to the fact that removal of the thyroid-parathyroid apparatus in the cat caused death within forty-eight hours, unless the animal was pregnant and the thyroid of the foetus was so far developed that secretion was generated and passed into the circulation of the mother, in which circumstances she remained well until after parturition, when she died. This was comparable with the improvement seen in hypothyroidic patients during pregnancy. Reference was also made to the evolutionary aspect of the disease as demonstrated by the normal condition of exophthalmos in association with epithelial hyperplasia, as seen in Graves's disease, which he had described in the lemur, and the phenomena of acromegaly which were seen normally in the higher apes, as suggested by Keith. Professor Blair Bell believed that the hypertrophy of the thyroid to which Dr. Williamson referred was not quantitative but qualitative. In the rabbit, ordinarily there was but little colloid secretion, but during pregnancy there was often an enormous quantity.

POST-ENCEPHALITIC PARALYSIS AGITANS.

A MEETING of the Devon and Exeter Medico-Chirurgical Society was held on December 18th, 1924, the President, Dr. VINCENT SMITH, being in the chair.

Dr. WILLIAM GORDON read notes on two cases of post-encephalitic paralysis agitans. The first patient, a boy aged 15½, had been seen in association with Dr. Foulkes. The initial symptoms had been characterized by fidgeting, with bouts of sleepiness, and the resulting effects were hemiplegia of the left side of a mild degree—as regards loss of power in the limbs—and with very slight paresis of the facial muscles. Nystagmus had been noted occasionally. At the present time, in addition to the hemiplegic signs, the facies, attitude, and tremors of paralysis agitans had developed, the typical position of the arms when at rest and the "cigarette-rolling" movements of thumb and index finger being also noted during observation in hospital. The second case was that of a man, aged 34, in whom there was mental cloudiness, fixed expression, rigidity, and the general attitude of Parkinson's disease, without tremor. There was also a dry scaly condition of the skin. There were no abnormal reflexes, but there was slight weakness of one external rectus. The patient was unable to walk without support. There was a definite history of encephalitis some four and a half years ago; cerebral symptoms lasted about four weeks, and from that time onwards there had been progressive deterioration to the condition described above. Dr. Gordon discussed the treatment in these cases, with special reference to Steinach's operation, which did not appear to be applicable to either of the cases. On the other hand, he considered that there was every justification for Letter's treatment, which aimed at bringing about an artificial leucocytosis by means of local irritants applied externally, as, for instance, in the region of the hip. Dr. Gordon had faith also in the use of iodides with arsenic.

Dr. G. L. THORNTON recounted the case of a young man, now aged 29, in whom symptoms of paralysis agitans had showed themselves definitely some three years ago, and who had already reached the paralytic stage of the disease. This patient had served in the navy, and there was a history of a short illness in 1918, in which the cerebral symptoms at that time were not sufficiently pronounced to substantiate a diagnosis of encephalitis. Vague neurological manifestations followed, but were considered to be functional at the time of his discharge, and for a year subsequent to that date. It had been noted, however, that in spite of his complaint of weakness in the legs, he was able to jump over low obstacles and to run upstairs, which was, of course, easily explained in the light of the now clearly established diagnosis. The interest of the case lay in the contrast between it and those shown by Dr. Gordon, in that, although without doubt a sequela of encephalitis, the Parkinsonian syndrome was uncomplicated, whereby it might be assumed that the original lesion had been confined strictly to the tracts now associated with paralysis agitans.

Dr. F. A. ROPER discussed the question of the apparent interval which elapsed between encephalitis and the onset of paralysis agitans, mentioning the case of a woman who had seemed free from symptoms for one year after an attack of encephalitis lethargica. Dr. G. P. HAWKER warned the meeting not to be deceived by a spurious nystagmus in cases where the ocular muscles might easily show fatigue.

Tuberculosis following Injury.

Mr. R. WAYLAND SMITH showed a youth with a tuberculous lesion of the forehead which had occurred on the site of an abrasion set up by a piece of falling timber. The original wound failed to heal, and tubercle bacilli had been found locally. The family history was healthy and the previous health excellent. The case was one of great medico-legal interest.

Mr. DYBALL mentioned two similar instances: (1) In a butcher who had received an abrasion of a finger when cutting up an ox, and subsequently developed tuberculosis of the finger and forearm. The disease became generalized and proved fatal. (2) In a servant girl in whom tubercle occurred on the site of a scald which, although of the second degree, had remained unhealed for three months, sinuses recurring, as in the case shown by Mr. Wayland Smith.

Reviews.

THE HUMAN TESTIS.

SIR ARCHIBALD GARROD, in his recent Harveian Oration, said: "It is natural, nay inevitable, that as medical science grows and advances, some of the workers in the field should elect to follow the path which leads through the laboratory, whereas to others the wards make a stronger appeal; and thus is taking place a differentiation of medical workers into distinct groups, and there is danger that the fission may go too far."

It is therefore with special pleasure that I review at length a monograph by Dr. MAX THOREK of Chicago on *The Human Testis and its Diseases*,[1] for, not satisfied with a wide surgical experience, he has also devoted time and attention to experimental and laboratory investigations, and, in my judgement, it is this conscientious and painstaking endeavour to familiarize himself practically with the whole subject which has enabled him to sift and correlate the facts relating not only to his own work, but to that contained in the numerous publications of other investigators. The conclusions he reaches strike the reader as being based upon sound judgement founded on first-hand clinical, experimental, and laboratory knowledge and experience of the subject. He is confident that continued research will soon establish definitely the identity of the internal secretion of the testis and its chemical composition, and supports this opinion by reference to the works of Winiwarter, who claims to have followed the transition of mitochondria to crystalloids; he refers also to the work of Duesburg, Iscovesco, and Mulon on the same lines. He does not accept the view that the Leydig cells are controlled by centres situated in the hypothalamic region or elsewhere, because they continue to live after transplantation of the testis.

The history of our knowledge of the functions of the Leydig, seminiferous, and Sertoli cells, from the earliest times until now, is discussed. The view that the testicle has a double function is an old one. The point, however, which has caused particular dispute is not the question of a separate testicular secretion which influences sex characters, but rather, what particular testicular structure is responsible for such secretion, and how it acts. There seems now to be general consensus of opinion that the interstitial cells are entirely responsible for sex potency, libido, eroticism, and retention of the secondary sexual characters. This is borne out by the results of castration and experimental transplantation in men and animals.

Dr. Thorek devotes about one hundred pages to the pathology of the testicle. He gives a short analysis of twenty-four cases, diagnosed as strangulated hernia, in which torsion of the spermatic cord was found. Ten of these cases were observed by himself. He makes another analysis of seventy-nine cases of radical operation for testicular growth, and concludes that the evidence is sufficient to show that a radical operation gives better results than simple castration.

Next an admirable account is given of the effects of the internal secretion of the testes upon growth and metabolism. Weil's studies relating to body proportions and sex-gland abnormalities are summarized, and Pézard's researches on the effects of castration are fully related. A fresh account is given of the strange Russian religious sect, the Skopzies, founded on a recent study by William Koch, who resided among them during the war. Their religion requires male members of the sect to submit to castration at some period in early life. Koch recognized four types: (1) the ordinary, with long extremities; (2) gigantism; (3) a type with acromegaly; and (4) a type with hypophyseal adiposity. The type seemed to depend upon the age at which the castration was performed.

After recording a number of interesting facts concerning the physical and psychic characters of castrates, Thorek concludes that the incretory function of the testes is of vital importance for the well-being of the individual, and that its correlation with other endocrine glands is fundamental. There are three types of eunuchoidism—(1) feminism; (2) genito-dystrophic gerodermia, a condition where the male is "old and seems young," or is "young and seems old"; (3) Falta's, or the tardy type, which appears after normal general sexual development when regressive symptoms develop. Precocious puberty, dwarfism, and gigantism, and their relation to gonadal and other endocrine dysfunctions, are fully considered, and the descriptions are illustrated by cases and some excellent photographs.

A good account is given of Steinach's vaso-ligation experiments and of the so-called "rejuvenation" operation. Thorek's own experiments on the higher apes and operations on a number of human beings according to Steinach's method gave results which in some instances were good, in others disappointing. The author provides the following summary of his opinions:

> "(1) I am opposed to the term 'rejuvenation.' It is misleading and may create a great deal of harm, particularly with the laity, who are bound to exaggerate.
>
> "(2) More clinical data from unbiased sources are necessary to form a definite opinion. Human data are the only reliable criteria, because what may hold true in the lower form of mammalia may often be found reversed in the human.
>
> "(3) Clinical evidence supported by laboratory checking will in due time establish the merits or demerits of the Steinach procedure. Presently a mass of evidence is inclined to pessimism, although some good results are reported from some quarters."

In a chapter on "The Male Climacteric" the author states that between 55 and 65 there is in many males a marked mental and bodily change, associated in some instances with arterio-sclerosis; in others a type of neurasthenia and involutional melancholia well known to neurologists and psychiatrists may occur. Steinach's experiments suggesting that the substances of internal secretion have a selective storage action in the central nervous system are of especial interest in relation to these conditions.

Thorek transplanted testes in six rhesus monkeys and obtained some interesting results. He found that when x rays were applied the transplant thrived, whereas in the control animal in which the transplant was not x-rayed it was absorbed. This he explains on the ground that around the x-rayed transplant few leucocytes were to be seen, whereas around the control they were abundant. He gives the dose of x rays which preserves the interstitial cells and ensures an adequate blood supply to enable them to thrive and function.

A very complete survey is given of reported cases of transplantation by various workers, including Voronoff. There is a strong biological reason why grafts from bovines, dogs, etc., are not successful when applied to man, and the investigations by Nuttall of blood affinity of man with the Simiidae offers some assurance of successful transplantation of "monkey gland." The work was in the press before the publication of Carr's investigations upon "The behaviour of the testis in transplantation, experimental cryptorchidism, vasectomy, scrotal insulation, and heat application" was published in *Endocrinology* (July, 1924). This important work, independently confirmed by a Japanese investigator, Fukui, appears to prove that "the scrotum of mammals is a local thermo-regulator for the testis, and that the regulatory or functional capacities are indispensable for the production of differentiated germ cells or the maintenance of those already produced." A very striking experiment of Fukui was this: Both testes of an animal were elevated into the peritoneal cavity, but artificially cooled on one side in the region of the testis. He found in the course of a few days that the testis which had been kept cooled was normal, whereas the uncooled testis was degenerated.

A chapter of particular interest to psychiatrists is that on dementia praecox and the gonads. An account is first given of the investigations of Gibbs (*Archives of Neurology and Psychiatry*, 1923, ix, 73), which showed that the failure in sex growth and behaviour was due to a biological inadequacy, but it is probable that the failure is not limited to the sex mechanism. "There is a total functional deficiency in most of these patients. Adequate functional activity of the thyroid, pituitary, and suprarenals seems to be necessary

[1] *The Human Testis and its Diseases.* By Max Thorek, M.D. London: J. B. Lippincott Company. 1924. (Med. 8vo, pp. x + 547; 308 figures. 38s. net.)

for sex growth." This is entirely in accordance with my histological observations of pituitary, thyroid, and adrenal glands in one hundred hospital and asylum cases.

Undue prominence is unfortunately given to the work of Matsumoto, who merely overlooked my specimens and was in no way responsible for the findings, as he only confirmed what I had already explicitly stated in a paper published in this JOURNAL (1919, vol. ii, pp. 655, 698, 737) on the examination of the testes in one hundred hospital and asylum cases. Thorek refers later to this paper in appreciative terms, as well as to another paper on "The interstitial cells in dementia praecox and primary post-adolescent dementia" by myself and Prados-y-Such. The conclusions are quoted verbatim, together with the tabular summary of results and most of the original illustrations.

It is interesting to note that at the present time Thorek has a number of cases of dementia praecox under observation in which human testicles have been implanted. Reports of some seem hopeful, but it must be remembered that spontaneous remission of symptoms is not unknown. I am doubtful, having regard to the fact that this disease is in all probability a genetic inadequacy affecting many organs of the body, and especially the telencephalon, whether any treatment is likely to give more than temporary benefit. However, seeing that modern investigations show that the interstitial cells have an energizing effect upon all the organs of the body, and that, as Thorek shows, an implanted testicle may retain its interstitial cells, such operative procedure is of great interest and importance, and is more likely than injections to be attended by good results. Still, having regard to the remarkable effects of insulin, it is possible that an analogous substance may be prepared from the testes; Steinach's experiments, however, suggest that it is only likely to have an effect on the central nervous system if the substance be obtained from animals of the same species—either anthropoid apes or man.

As a result of his own experiments and observations Thorek concludes "that the practicability of therapeutic transplantation from the higher apes to man is proved beyond any doubt." The indications and contraindications for sex gland transplantations in the male are fully discussed; moreover, all the details of the operation are very carefully and clearly described, and the reader is helped to follow the technique by numerous diagrams and photographs. The concluding chapters deal with such subjects as neuroses of the testicle, diseases of the scrotum, varicocele, hydrocele, and their medical and surgical treatment.

Thorek's authoritative standard work should prove of great value to the medical profession on account of its clear exposition, practical character, first-hand knowledge, and up-to-dateness. The book is illustrated by 308 excellent diagrams, photographs, and photomicrographs. There is a good bibliography at the end of each chapter, and an index of over 500 authors cited.

FREDERICK W. MOTT.

"E.R.A." TREATMENT.

"*The Abrams Treatment" in Practice: An Investigation*,[2] by Dr. G. LAUGHTON SCOTT, is a small volume which we have read with much interest. The writer has attempted no general examination of the doctrines of the "E.R.A." cult, but has confined his attention to two questions only: "(1) whether the instrument of treatment, the oscilloclast, produces clinical results which cannot be denied; and (2) whether the instrument gives rise to demonstrable electrical phenomena which might explain any positive results."

The first problem is treated in the body of the book, and part of the second question is dealt with in an appendix in which Messrs. A. S. E. Ackermann and W. Clark, consulting engineers, report upon the machine. Messrs. Ackermann and Clark conclude as follows:

> "Having made the experiments and investigations herein recorded, we are satisfied that a patient, when treated as were our subjects by the oscilloclasts we used, is subjected to the electrical pressure of the supply mains, whether the current in the mains is alternating or direct, and that this pressure is interrupted about 200 times per minute. We are also satisfied that these electrical effects could be produced by a more simple and less costly apparatus."

They mention in their report that earlier investigations of another model of the oscilloclast failed to show that it produced any electrical effects in its terminal leads, but, as the reporters say, "it is clear the oscilloclasts with which we experimented were not of the same design as that illustrated and described at page 177 of the *Lancet* of January 26th, 1924." The criticisms of the earlier types of oscilloclasts examined by previous workers were so drastic that it is not surprising that the pattern of apparatus has been changed so as to avoid the obvious criticism that it does not do anything at all.

Information concerning the structure of the oscilloclast has been scanty; these machines are leased (not sold) for about £150, and one of the conditions of the lease is, we are informed, that the instrument shall not be opened. Messrs. Ackermann and Clark show that the greater portion of the apparatus in the oscilloclast is functionless, and that the essential part of the machine is a simple rocking magnetic interrupter.

The electrical effect of the machine examined is that, with each interruption, a very small current of the order of a micro-ampère flows to the patient (the actual quantity depending on his insulation from earth), and this current gives him an electrostatic charge of the same voltage as that of the supply mains. The current flowing into and charging patients can be demonstrated by means of a gold leaf electroscope or by a telephone receiver. If the patient's skin be stroked with a conducting substance (for example, a finger) leading to a body—as, for instance, the observer—possessing electrostatic capacity, a rough feeling is experienced; this effect is presumably due to a small current passing through the skin from the patient to the other body and stimulating the erector pilae muscles. There is, of course, nothing very surprising or unusual about a machine which produces such effects. The really remarkable thing about earlier patterns of oscilloclasts was that a machine should have been so constructed that when a current from the supply mains was put in at one end no electricity whatever escaped at the other.

The reports of the clinical effects produced by the instrument are much more remarkable than the electrical effects, for Dr. Laughton Scott relates cases of his own and of three other medical men, and claims that treatment with the oscilloclast produced marked benefit in cases of tuberculosis, chronic local infections, exophthalmic goitre, and various other conditions. In particular, the observers found that treatment had a marked effect in reducing temperature in cases of chronic pyrexia. The author concludes:

> "After a year's work, the writer is unable to avoid the conclusion that the instrument exercises in favourable cases an exceedingly powerful influence on general health, which in the treatment of particular diseases may be, and frequently has been, very useful."

Dr. Laughton Scott is careful to emphasize the fact that he in no way accepts the general doctrines of the "E.R.A." cult; his position is summed up in the following words:

> "If the electrical phenomena described should thus be found to account for all the effects of the oscilloclast, the main fabric of Abrams's work would fall to the ground. But in its place the study of the therapeutic value of periodic low electrical pressure would arise, the possibilities of which might be considerable."

This position appears to be unexceptionable. There are few therapeutic agents which have excited such high hopes and yielded such severe disappointments as has electricity. Electro-therapeutics, moreover, has had the misfortune to be exploited repeatedly by unscrupulous quacks. These facts, however, are no reason for not examining as exhaustively as possible any method that offers any promise. Paracelsus claimed that he had sought truth everywhere, even when it was hidden in the stews, and Dr. Laughton Scott is to be congratulated if he has isolated a kernel of truth from the doctrines of the "E.R.A." cult.

The followers of the "E.R.A." cult have been attacked repeatedly in the medical journals of this and other countries, the essence of the charges against them being that they

[2] "*The Abrams Treatment" in Practice: An Investigation.* By G. Laughton Scott, M.R.C.S., L.R.C.P., B.A.Oxon. London: Geoffrey Bles. 1924. (Cr. 8vo, pp. 155; one diagram. 5s.)

have claimed to possess a universal cure-all and have declined to put forward any intelligible explanation of their method. The same rules hold for medicine as for other sciences. Any new theory, however improbable, deserves impartial investigation, provided that reasonable evidence is put forward in its support, and provided that no attempt is made to preserve secrecy but the fullest information and facilities are given to all investigators who desire to check the observations described. The leaders of the "E.R.A." cult violated these rules by patenting their apparatus and leasing it at a very high price, and at the same time doing their utmost to preserve secrecy regarding its method of construction.

We express no opinion regarding the clinical results that Dr. Laughton Scott records, but we must note that although he has shown that the modern type of oscilloclast produces electrical effects, yet these effects scarcely seem adequate to explain the clinical results he has described. It would be very extraordinary if such feeble currents of low intensity should produce any demonstrable clinical effects. Dr. Laughton Scott has, however, described his methods fully, and anyone who is interested can test them for himself, and it would be perfectly easy to make certain obvious controls. Dr. Laughton Scott informs us that, in order to avoid any suggestion that he is exploiting a patent or secret remedy, he has arranged for the Medical Supply Association to make, and to supply at an ordinary trade profit, an apparatus which will produce the electrical changes with which he claims to have produced his successful clinical results.

MODERN CLINICAL METHODS.

DRS. BEAUMONT and DODDS are greatly to be congratulated on having succeeded in bringing into the compass of a small book a reliable account of some of the more important new methods of clinical and laboratory investigation of disease. It is difficult for practitioners to keep abreast of the innovations that are being made in clinical methods and in modern treatment. *Recent Advances in Medicine*[3] offers in concise form not only the technique of the new methods, but a tentative valuation of them. What every practitioner asks when he hears that some investigation that is strange to him has been proposed or performed on his patient is, What is the practical importance of the results obtained?

As examples we may quote from the tests of renal function that in obstetric cases "premature labour should be induced if (*a*) the blood urea and non-protein nitrogen contents are above 40 mg. per 100 c.cm., (*b*) the hepatic tests become positive." On the other hand, "from the medical aspect renal function tests fall short in the fact that they do not provide a diagnosis and give a poor idea with regard to prognosis."

This way of stating the case is admirable. We want to know how to advise our patients. Many investigations are in the nature of trials of claims made for the tests rather than of means to afford useful information for individual patients. It is imperative that such trials shall be carried out, but often the practitioner is at a loss to know to which category a proposed test belongs. This book will enable him to decide. It is not to be supposed that the judgements of the authors are final, but for the present time it serves its purpose excellently. To turn to another use of this work, nowadays many practitioners are both willing and competent to carry out laboratory tests not requiring elaborate apparatus. The technique of the tests is described in sufficient detail to make the volume a laboratory handbook; or at least it will enable the reader to decide whether the method is beyond the resources of himself and his private laboratory.

The authors have not confined their study to methods of examination alone. They have included some most valuable chapters on treatment; we refer in particular to the treatment of diabetes, of gastric and duodenal ulcers, of asthma and urticaria, and the use of some cardio-therapeutic measures.

The book is well illustrated and well printed. It is likely to be successful because it meets adequately a real demand.

[3] *Recent Advances in Medicine: Clinical, Laboratory, Therapeutic.* By G. E. Beaumont, M.A., D.M.Oxon., F.R.C.P., D.P.H.Lond., and E. C. Dodds, M.B., B.S., B.Sc.Lond. London: J. and A. Churchill. 1924. (Extra post 8vo, pp. xii + 292; 37 figures. 10s. 6d. net.)

BIOCHEMISTRY AND HUMAN PHYSIOLOGY.

WE have great pleasure in welcoming the appearance of a second edition of Mr. PARSONS'S book *Fundamentals of Biochemistry in Relation to Human Physiology*.[4] It is particularly difficult to write about biochemistry without becoming involved in a maze of structural formulae and other essential but dry details, and elementary textbooks are specially liable to degenerate into a recital of somewhat disconnected facts. Mr. Parsons, however, has succeeded in producing a clear and readable introduction to his subject, and the fact that a second edition has appeared only eighteen months after the first shows that these qualities have been appreciated.

Only minor alterations have been made in preparing the new edition, but the book has been brought thoroughly up to date, and various errors and misprints in the first edition have been corrected. An account of the most recent views as to the part played by lactic acid in muscle contraction has been introduced into the chapter on the utilization of carbohydrates, and an account of the functions of insulin has been added to the chapter on diabetes. New theories are also given concerning the mode of origin of creatinine, the chemical constitution of glucose, and the structural formula of urea.

The essential feature of the book is that it gives a really readable account of those fundamental facts of biochemistry which are of special importance in medicine, and the work is therefore admirably adapted for medical students, and also for medical practitioners who desire to refresh their knowledge of this subject.

COLOUR VISION.

IN noticing the first edition of Sir JOHN PARSONS'S *Introduction to the Study of Colour Vision*, we expressed the opinion that it was a valuable book. This judgement has been confirmed by the call for a second edition.[5] The author has taken note of the important work which has been done since 1915; thus he gives a satisfactory summary of Ives's researches into the phenomena of recurrent vision. It would, perhaps, have been as well in this, and some other cases of postulated mathematical "laws," to reproduce the numerical data as well as small-scale diagrams. The non-mathematical reader is sometimes overawed by formulae, the arithmetical justification of which is scanty. It is, however, difficult to give a full account of so large a subject in one volume, and both Sir John Parsons and his readers are to be congratulated on the appearance of the new edition.

DIVISION OF THE RENAL NERVES.

THE *Archives Urologiques de la Clinique de Necker*[6] contains Dr. Flandrin's paper on the nerve supply of the kidney. The author makes a practice in certain cases of exposing the nerves on the pedicle of the kidney and deliberately dividing them, and his article contains a description of the technique of his operation and the best manner of recognizing the delicate nerve fibrils. The most important portion of the paper, however, is probably the section dealing with the action of the nervous system on renal secretion.

In summing up, Dr. Flandrin states that he has found that division of the nerves of the pedicle is particularly useful as a method of relieving pain in cases of pyelitis and

[4] *Fundamentals of Biochemistry in Relation to Human Physiology.* By T. R. Parsons, B.Sc.Lond., M.A.Cantab. Second edition. Cambridge: W. Heffer and Sons, Ltd. 1924. (Cr. 8vo, pp. xii + 295; 20 figures. 10s. 6d. net.)

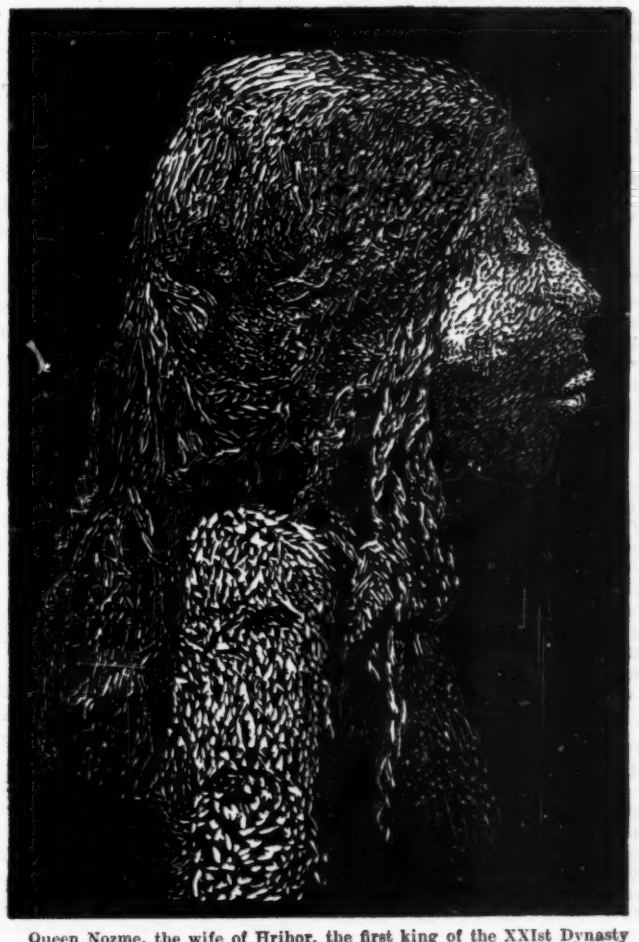
[5] *An Introduction to the Study of Colour Vision.* By Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S., F.R.S. Second edition. Cambridge: The University Press. 1924. (Roy. 8vo, pp. x + 323; 94 figures, 1 plate. 25s. net.)

[6] *Archives Urologiques de la Clinique de Necker.* Publiées par Dr. F. Legueu. Tome IV. Fascicule II. Paris: Maloine et Fils. 1924. (Imp. 8vo, pp. 101-278; 7 figures. Fr. 15.)

movable kidney. In his experience this practice has not been followed by any untoward results with regard to excretion, although laboratory experiments have shown that the innervation of the kidney modifies the excretion of water and chlorides.

EGYPTIAN MUMMIES.

THE history of mummification is not only of profound importance to the Egyptologist and archaeologist; it has much interest for the anatomist, by reason of its influence upon the early development of his science, and also for the student of the history of medicine. Professor ELLIOT SMITH and Mr. WARREN R. DAWSON have presented us, in a volume entitled *Egyptian Mummies*,[7] with a most fascinating sketch of the development of the process of mummification, and have suggested its far-reaching effects and importance. More than two centuries ago the theory was advanced that the first crude attempts to prevent corruption of the dead body had been suggested by the arrest of decomposition found on examination of many of the corpses buried in the shallow graves in the hot dry Egyptian sand. A number of other and more fanciful explanations have been advanced to account for the origin of this interesting custom, but so far we are compelled to speculate as to the motives which induced the procedure in the first instance. Whatever the origin, it seems clear that for three thousand years the art was practised with increasing skill, two objects being constantly before the embalmers—to prevent decomposition and to preserve the actual form and identity of the individual.



Queen Nozme, the wife of Hrihor, the first king of the XXIst Dynasty (Thebes). The mummy belongs to the transition period when the embalmers were attempting to restore the form. (Woodcut by A. Horace Gerrard.)

At first the attempts at preservation were very simple and quite inadequate, some material, possibly natron, being applied to the surface of the body, which was then wrapped in a series of bandages. Later the viscera, with the exception of the heart, were removed through a wound (generally found on the left side) and placed in Canopic jars. The Canopic jars were used from ancient times, and were frequently decorated and inscribed. Their number was constant, four invariably being used. In the first was placed the liver, in the second the stomach, in the third the lungs, and the intestines were deposited in the fourth. The heart was never removed; the treatment of the kidneys was not so constant, but usually they were left in position. After excision of the organs the body was embalmed, and the body cavity packed with sawdust and balls of linen impregnated with resin. The essential preservative agent for embalming the body was common salt, but analyses of the resins have proved that balsams and the woods of various aromatic trees, especially juniper, were also used. Even in the earlier remains there is evidence suggesting that an attempt was made to produce a model of the individual as well as to preserve the tissues. With the acquisition of greater skill, the brain was removed piecemeal through the cribriform plate of the ethmoid, and the cavity of the cranium packed with strips of linen soaked in resin. A further development was the evolution of an elaborate method of packing the trunk and limbs to avoid the great distortion consequent upon shrinkage of the tissues. During the later history of the subject, in an obvious effort to make the whole as complete as possible and convert it into a "portrait statue," mummification became a very lengthy process, calling for high skill. Not only were the limbs and trunk padded and the organs restored, after embalming, to the body cavity, but the swathed mummy was painted in as realistic a manner as possible. It is of interest to find that with the greater elaboration of this external decoration, the processes required for preservation of the body became less adequate, and by degrees less attention was given to the body and more and more to the wrappings.

In order to unravel this history a vast number of mummies have been examined, and their study has brought to light valuable and interesting information regarding diseases to be found in those distant times. Although the pathological processes which may be recognized in the mummified body are very limited, quite a number of conditions have been identified. Most of the diseases are of necessity those affecting bone, but several cases of arterial disease have been found, and even the presence of vesical calculi and pleural and appendicular adhesions noted. The absence of any true example of rickets or syphilitic disease, and the non-appearance of true cancer until the more recent dynasties, although several cases of sarcoma have been discovered, is significant and of considerable interest. One case of gout, one of leprosy, and evidence of tuberculous disease have been encountered. Mastoid trouble was of frequent occurrence. Examination of the joints has shown that very few pre-dynastic Nubians ever reached adult life without exhibiting the changes of rheumatoid arthritis, a disease common at all periods. Dental caries was rare until the advent of luxury, but alveolar abscess from infection of the pulp cavity exposed by wearing down of the teeth is not infrequently revealed.

Information about the treatment of disease is scanty, and so far no bodies examined have afforded any evidence of surgical procedures other than the use of splints. The discovery of the remains of mice in the alimentary tract of several children suggests that this animal was used, as it still is in some countries, as a children's medicine.

[7] *Egyptian Mummies.* By G. Elliot Smith and Warren R. Dawson. London: G. Allen and Unwin, Ltd. 1924. (Post 4to, pp. 190; 48 woodcuts, 25 other illustrations. 25s. net.)

NOTES ON BOOKS.

How is your Heart?[8] and *Your Heart and how to take Care of it*[9] are two books by American authors which have been written specially for the education of the lay public. The former, by Dr. S. CALVIN SMITH of Philadelphia, is written in a style which is likely to appeal to readers who have no

[8] *How is your Heart?* By S. Calvin Smith, M.S., M.D. With an introduction by Sir Thomas Horder, Bt., M.D., F.R.C.P. London and New York: Cassell and Co., Ltd. 1924. (Cr. 8vo, pp. xi + 204. 5s. net.)

[9] *Your Heart and how to take Care of it.* By Robert H. Babcock, M.D., LL.D. New York: D. Appleton and Co. 1924. (Cr. 8vo, pp. 235; 5 illustrations. 5s. net.)

previous knowledge of the heart and its functions. The author's object is to direct attention to the various causes and earliest symptoms of heart disease, so that affections of the heart may be recognized and treated at the earliest possible moment in order to avoid much preventable cardiac disability in later life. The subject is treated in considerable detail, and many of the minor factors which militate against an efficient circulation are explained in a rational way. It is usually difficult to explain a technical subject to an untrained person, but we feel that Dr. Smith has succeeded in producing a book which should serve its avowed object. There may be a difference of opinion about doctors addressing the public on medical subjects, but we notice that Dr. Calvin Smith does not anywhere mention his address, and the copy we have received has been printed in this country. We think it right to our readers to mention that the author should not be confused with another member of the profession of the same name who is on the British *Medical Register*. The second book, by Dr. ROBERT H. BABCOCK, while also addressed to the public, is much more technical. The anatomy and physiology are described in too much detail, and terms are employed which will tend rather to confuse than help the popular reader. Otherwise the information contained is mostly sound and follows in general the same lines as the other volume.

A revised edition of the useful little pamphlet *To Wives and Mothers: How to Keep Yourselves and your Children Well and Strong*[10] has recently been issued. Its popularity is evidenced by the fact that its issue has reached 285,000. The pamphlet is compiled by the Association of Infant Welfare and Maternity Centres. As the committee responsible for it consists of certain leading authorities on child welfare, together with some medical officers of welfare centres and lay members practically interested in mothercraft, its contents may be taken as representing the most modern and practical teaching on this subject, standardized as far as is possible. It is not intended to replace expert medical advice, but rather does it represent excellent "notes" which an intelligent mother might take from the health talks of a doctor. Information is given clearly and concisely under good headings, and there is an index. In the chapter on care of the infant the statement is made that "until the cord is healed the baby should not be immersed in the bath water"; this teaching is contrary to the practice usually adopted by midwives. The method of breast-feeding is described fully, together with notes on mixed feeding and weaning. The management of children from 1 to 5 years is referred to, with a few words on character training. Other sections deal briefly with the usual infantile ailments, the common infectious diseases, and emergencies. The importance of sunshine, fresh air, and cleanliness is indicated. A few simple recipes, hints on washing, and directions for making a knitted outfit for the baby complete a most instructive little guide.

Lessons on the Care of Infants,[11] by Mrs. WATSON, is a revised edition of a small pamphlet first published in 1907. There is a preface and introduction by Mr. BENJAMIN BROADBENT, ex-Mayor of Huddersfield, whose interest in the welfare of mothers and children is well known. There are five lessons—on natural food, artificial food, clothes, sleep and fresh air, and general care. Simple information is given on these subjects and at the end of each lesson are a few questions. It should prove a useful little pamphlet to school teachers and those who give instruction in mothercraft.

The *Manuel de petite chirurgie* of MM. ARDIN-DELTEIL and P. SOUBEYRAN has now reached its third edition.[12] It is a large book of 917 pages, well illustrated, containing an account of the essentials of minor surgery, and ending with the technique of necropsy. The book follows traditional lines and gives a fair account of antisepsis, anaesthesia, splints, etc., and various of the lesser operations. It is intended for practitioners, students, and nurses, and will not lead them astray, but a book of this size might have been expected to reflect more clearly advances in surgical pathology and treatment.

Sir ARCHIBALD GARROD'S Harveian Oration on *The Debt of Science to Medicine*,[13] published in our columns on October 25th, 1924 (p. 747), has been printed in a pamphlet and published by the Oxford University Press.

[10] National League for Health, Maternity, and Child Welfare, 117, Piccadilly, W. 1924. (Demy 8vo, pp. 59. 5d. post free.)

[11] *Lessons on the Care of Infants (for use in schools)*. By Mrs. Watson. With a preface and introduction by Benjamin Broadbent, C.B.E., LL.D., M.A., J.P. London: Longmans, Green and Co. 1923. (Cr. 8vo, pp. 19; frontispiece. 6d. net.)

[12] *Manuel de petite chirurgie et de technique médicale journalière*. Par P. Ardin-Delteil et P. Soubeyran. Troisième édition. Paris: Masson et Cie. 1923. (Roy. 8vo, pp. 927; 507 figures. Fr. 45.)

[13] *The Debt of Science to Medicine*. Oxford: By the Clarendon Press. 1924. (Med. 8vo, pp. 30. 2s. 6d.)

Dr. LOUISE BRINK'S monograph on *Women Characters in Richard Wagner*[14] is a study of *The Ring* from the standpoint of psycho-analysis. The work is divided into two parts, dealing respectively with the psychic problem and the problem in the drama, and traces a close relation between Wagner's drama and his psychic life. A bibliography of psycho-analytic works bearing on literature and mythology is appended.

The "*Wellcome*" *Photographic Exposure Calculator*[15] for 1925 contains the usual memoranda, with certain additions. Two methods of developing with the aid of a tabloid desensitizer are described, and a comprehensive list of the comparative speeds of development of papers and lantern slides is given. Over 280 kinds of plates and films, including the later varieties, and more than 100 kinds of bromide and gas-light papers are classified.

[14] *Women Characters in Richard Wagner*. By Louise Brink, Ph.D. Nervous and Mental Disease Monograph Series. No. 37. New York and Washington: Nervous and Mental Diseases Publishing Company. 1924. (Med. 8vo, pp. xv + 125.)

[15] London: Burroughs Wellcome and Co. 1925. Price 1s. 6d.

MOTOR NOTES FOR MEDICAL MEN.

CHANGING CONDITIONS IN 1925.

By H. MASSAC BUIST.

THE three outstanding fresh phases of motor enterprise in the New Year which have a direct bearing on the medical man's use of a car are:

(*a*) The readjustment of the broken period licence charges, which comes into operation on New Year's Day.

(*b*) The Road Traffic Bill, which will be introduced in February by Lieut.-Colonel Wilfred Ashley, Minister of Transport, to consolidate the law in regard to the use of vehicles on the road; it will, it is anticipated, abolish the twenty miles an hour and all other speed limits, require the evidence of at least two witnesses before a motorist can be convicted of dangerous driving, and make the use of rear lights compulsory for all vehicles on the road, including pedal bicycles.

(*c*) The introduction of a remodelled scheme for the safeguarding of industries, whereby the hard-pressed British motor car maker will be shielded in some degree against the competition of car industries in other countries, all of which are assured of their home markets.

Medical men who are relatively new to motoring may be reminded that all vehicle licences have to be taken out at the New Year; that it is not usual to give more than six days' grace in face of the opportunity offered to send in the necessary papers, and so forth, a fortnight before the end of the year.

SITUATION IN REGARD TO LICENCES.

The new arrangement in regard to taking out what are called broken period licences for cars does not concern the owner who takes out a licence during the first month of the year. It is in the nature of an adjustment, as distinct from a concession. In short, the revenue does not stand to lose anything by it. Like all changes, of course, examples can be cited in which it causes hardship on the motor owner by comparison with the situation that obtained formerly. These matters, however, have to be arranged always on the principle of securing the greatest good to the greatest number. From that point of view the readjustment is more equitable in the majority of cases. It is possible to obtain a quarterly licence now on payment of 27½ per cent. of a full annual licence. If a broken quarter is taken into account, together with what remains of the calendar year, there is a calculation of "one-twelfth of the full annual rate of duty for each month, or part of a month, included in the given period, and a further amount calculated at the rate of 5 per cent. of the amount so ascertained." The car owner has to pay one-third of the quarterly rate for one month, two-thirds for two months, and the full rate for any balance of weeks or days over two months.

CAR TAXATION.

As far as motor taxation is concerned, it is extremely unlikely that any reduction in car licences will be made in

the Budget this year. The reason is that, even as the present scale of licences exceeds anything that was anticipated when it was introduced, so, unfortunately, does the expenditure on roads. It is being realized that this is becoming more effective, and that motorists will obtain full value for their money.

Again, it is now abundantly plain that the one branch of the world's industry which in general might be said to suffer from the licence scheme—it has an overwhelming advantage in every other respect—is American manufacturing and export. It is already clear that practically all the leading makers in the United States will shortly produce engines which will come out much more favourably under European engine rating schemes than the power plant they have put in their vehicles hitherto. Consequently any hardship under that head will tend to diminish. Current types of transatlantic cars enjoy such an enormous advantage in the matters of low initial cost, and so forth, that any item of extra tax would have to be paid for more than a dozen years before an owner's costs would begin to be on a par—under the combined heads of initial purchase price and licence fees—with a home-made car.

SAFER NIGHT DRIVING.

Probably medical men are the section of the car-using community which stands most to benefit by the legislation to be introduced in February concerning road traffic. Medical men have necessarily to do a good deal of motoring by night, and the strain of watching for a bicycle ahead without a rear light is serious. Driving at night will also be rendered easier by the numerous improvements being made all over the country to eliminate dangerous turnings, and so forth. Such improvements are urgently needed, for commercial night traffic is increasing at an amazing rate. It seems probable that before very long main roads will be as busy at night as during the day.

The proposed abolition of the speed limit of twenty miles an hour, which rarely troubles the medical man, and which in most parts of the country has been regarded by motorists and the authorities as a dead letter, is of itself not a matter of importance. Its consequences may, however, be important. Thus, whenever it is desired to prosecute hereafter it will have to be on the charge of dangerous driving. There is nothing to prevent any person, or persons, accusing a road-user of dangerous driving in circumstances in which it would be practically impossible for the motorist to disprove such a charge on his own evidence alone. The proposal to require two witnesses is in accordance with the recommendation of the Departmental Committee. It must be admitted that police evidence is sometimes prejudiced, and that even when unprejudiced the constable who gives it may be no competent judge. As cars are now being designed and built the efficiency of control varies enormously, and even experts may not always be prepared to give testimony one way or another. As a matter of practice we know also that the proclaimed policy of several benches in the country, carried out during the last score of years, has not been quite impartial. The bill it is proposed to introduce next month will probably remain in force for a good many years, and it is essential that all concerned should look carefully at the probable practical effect of the proposed changes. The clause in the bill should be so clearly worded as to make it impossible for any bench to indulge its prejudice by distorting the letter of the law. A wrongful accusation of dangerous driving may result in an innocent accused being sentenced to a term of imprisonment. Unless the bill is worded very explicitly under this head, leaving no loophole for discretion or no power of discretion on this point to departments (that is, unless it strictly and satisfactorily defines the conditions on which a prosecution may succeed), I personally am of opinion that removal of the twenty miles an hour motor car speed limit will be popular for nine days only and be regarded as a curse afterwards. It is the most difficult problem the Government has to face in drafting this bill. The bill will not contain any proposal to require car drivers to undergo medical examination before driving licences are granted.

FUTURE DEVELOPMENT OF CARS.

Mechanically, there will be many changes. There is a world-wide tendency to obtain better performance from smaller and, therefore, lower-taxed power plant. We shall see more of this when the motor show comes to be held at the end of October and the beginning of November next. It will be noted that this is a later date than that of the successful experiment at Olympia in mid-October last year. This is due to the situation in Paris, and to an old understanding between the organizations of the British and the French industries. A period will have to be put to that unwritten arrangement, however, in that it works to the detriment of the motor vehicle user and buyer, as well as to the motor manufacturer and trader, in this country. Indeed, we want, in London, not a show in the middle of October, but in the first week of that month. There will be no motor show in Scotland this year, for there were two last year.

There will be no 1,000-mile trial for standard cars in the Highlands of Scotland, nor in this country, and no Tourist Trophy car race in the Isle of Man. But there is likely to be some important racing in Dublin, for which the Royal Irish Automobile Club has been preparing for a long time.

More important in regard to the development of the car, however, is the introduction in Parliament of what a few years ago would have been regarded as fantastically impossible—namely, a private bill to permit the closing of roads for a few hours in order to conduct in the heart of England, probably in the Midlands, an international road race. Such an event could not be held this year. But the necessary Parliamentary powers are likely to be obtained this year, because it is recognized that the motor industry is a key one, and that ours is handicapped greatly by comparison with the industry on the continent of Europe and in America, where road racing is permitted. As there could be no road racing in England until 1926, and as the present small car engine limitation (1,500 c.cm. cylinder content) will be the limit for the largest cars to be raced in the classic event in America in 1926, it seems not unlikely that such a private bill will go through. It would assist experiment and trade greatly.

From the medical man's point of view, as one who requires to use covered types of cars, I would mention that if this essential work of experiment is carried forward under every encouragement from wise regulations, there is no reason why a 500 c.cm. (or motor-bicycle size) engined car should not be sufficient in less than a decade to propel a four-seated saloon; this will mean an enormous saving, not only in initial cost and taxation, but also in running costs (tyre and fuel). Meantime, much more will be learned by manufacturers this year concerning lacquer finishing for cars, which can be cheap, durable, and proof against spilt petrol.

THE FUTURE OF FUEL.

Very important fuel experiments are being made. Of course, there is no such thing as British fuel, because benzol failed us badly last year, owing to the depression in the coal and iron industries. It cannot be produced in sufficient quantities, since it pays only to distil it as a by-product. Before a decade is out, however, we shall have something really important and quite different in the way of home-produced fuel. The talk of British petrol proves seldom to be more than the embarkation of British capital in purchasing and working oil fields in countries which, if not hostile, are at least subject to all sorts of influences from nations and interests hostile to ourselves. In the event of a national emergency such oil fields would rather need guarding than be an assured source of fuel supply to our navy. Consequently, we are living in a fool's paradise as long as we assume that we are assured of foreign oil fields. Far more important are the oil fields which exist in British territory, no matter by whom owned. At least, their outputs could and would be commandeered in emergency. But we shall not have completed the vital task until we derive a suitable motor fuel from treating raw material obtainable in these islands. At the moment I cannot state more beyond indicating that the necessary experiment will assume a very important phase by September or October next.

British Medical Journal.

SATURDAY, JANUARY 3RD, 1925.

THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.

IN the SUPPLEMENT this week is published the draft Memorandum of Evidence proposed to be given by the British Medical Association before the Royal Commission on National Health Insurance. This is one of the most important documents that has ever been put before the medical profession for its consideration. It has been the subject of prolonged thought and debate by the Insurance Acts Committee and by a large special committee containing representatives of consultants, pathologists, and others working in special branches of the profession, together with general practitioners not engaged in insurance practice. At the meeting of the Council on December 17th it was discussed, emended, and approved as a document suitable for discussion at meetings of the profession to be summoned immediately in all areas. As will be seen from the report of the proceedings of Council published in the SUPPLEMENT this week, the paragraph dealing with the question whether dependants should (subject to restrictions) be included within the scope of national insurance was retained by the Council by 25 votes to 11. As will be seen also from the list of questions appended to the draft Memorandum of Evidence, this is the first matter upon which the meetings of the profession will be invited to express an opinion.

It is true that the main proposals in the Memorandum are in substance, and often in detail, covered by resolutions which have at some time or other been passed by the Representative Body of the Association or the Conference of Local Medical and Panel Committees; but it is none the less imperative that they should be reviewed in the light of the present situation, and that any decisions upon them should be well considered by the whole profession.

The document is not a final one. It is issued as a draft merely—though a draft which represents the provisional considered judgement of those members of the profession who have had most to do with the matter with which it deals. It is now to be submitted to local meetings of the whole profession—not of insurance practitioners or members of the Association only—in the various areas, and it is hoped that all these meetings will be representative and well attended. It is hoped also that not only specialists but those general practitioners who have hitherto refrained from accepting service under the Insurance Acts will attend and freely express their opinions. Certain specific questions are to be asked at these meetings, but the whole document will be open to discussion. These meetings must be held during the present month, as answers must be ready by January 31st for consideration by a committee on February 5th, and by the Council on February 18th. Thereafter a revised memorandum will be issued to the profession; this, in its turn, will be considered at local meetings if thought necessary, and on March 12th at a special conference of members of the Representative Body with members of the Conference of Panel Committees. This procedure should enable the Association to send the Memorandum to the Royal Commission, and to present its evidence, with complete confidence that it has behind it the full and deliberate backing of the profession as a whole. It is worth while to make sure of this even by a programme which is somewhat elaborate; any opinion so gathered and expressed must carry very great weight.

It should be remembered, however, that there is another sense in which the Memorandum is not final. It does not, and will not, represent a fixed and determined policy of the British Medical Association, or a decision which is not open to modification or revision. It is clearly to be understood that the Memorandum of Evidence to be submitted to the Royal Commission will contain merely suggestions—though suggestions of wide-reaching importance—which the profession thinks it well to place before, or even to urge upon, the Royal Commission. Some of these may not be adopted by the Commission in its report; some, even, of those adopted may not be presented to Parliament in a Government bill or embodied in any legislative Act. At a later stage, when a report is issued or when a bill is introduced, there will be time and opportunity for the profession to make its voice heard and its pressure felt with regard to any proposals actually made. This position should be borne in mind by the meetings at which the draft Memorandum is considered, but it should at the same time be remembered that it will be almost impossible later to oppose proposals substantially in the same form as suggestions made by the profession itself in its evidence.

Such is the authority and present position of the document; it is to be regarded as an attempt to present in outline a comprehensive constructive scheme for making provision for the public health along insurance lines. Proposals from any quarter which are obviously in the interest of the common health will always be received with sympathetic consideration by the medical profession, even though they may seem to conflict with professional interests and traditions; but it is of paramount importance to all, not least to the sick person, that such conflict should be avoided if at all possible, should be reduced to a minimum where it cannot be avoided altogether, and that all necessary arrangements should be so presented to practitioners as to avoid their antagonism and to secure their willing co-operation.

The scheme presented in the Memorandum, if adopted in its entirety and with all its provisos, would, it is hoped, go far to attain this desirable end. Its aim is to secure a complete medical, surgical, and maternity service for all the poorer members of the community who are unable to provide it for themselves. It seeks, while giving an impetus to preventive medicine in many ways, to preserve that individual interest in attendance and in administration which it is so desirable to perpetuate. The scheme, however, raises serious difficulties, not merely of public finance but of economic and other effects upon the profession, which need for their solution all the wisdom which the medical profession, the Royal Commission, the Ministry of Health, and Parliament can bring to bear upon them. The care with which the draft Memorandum has been prepared ought to be reflected in the earnestness and deliberation with which it is considered by every practitioner.

IODINE IN EXOPHTHALMIC GOITRE.

"THOUGH the waves toss we travel." The perusal of Dr. Francis R. Fraser's address, published this week, conveys a sense of progress. For fourteen years the majority of physicians have followed the advice of those who considered that iodine should not be given in Graves's disease, unheeding the assurances of some who advised them to the contrary. Now comes the convincing evidence, provided by Dr. Fraser as well as by physicians in the United States and Canada, that iodine in appropriate dosage can bring about a lowering of the basal metabolic rate and of the heart rate to a normal level, and an increase of body weight, with a striking improvement, objective and subjective, in the general condition of the patient. Though the improvement does not last it has great significance, and is of a kind which will lead in the near future to a better understanding of this remarkable malady.

In all but a small proportion of cases (5 to 10 per cent.) there is present in exophthalmic goitre, as one of its cardinal symptoms, a condition of greatly increased activity of the thyroid gland. This increased activity is associated with diffuse hypertrophy of the organ and a greatly increased discharge from it of its iodine-containing secretion. It would seem that the function of the thyroid gland is to elaborate an internal secretion containing the gland's active principle or principles, and to deliver this secretion to the circulation for distribution to the tissues in amounts proportionate to their needs. It may, perhaps, be assumed that the greater the needs the greater the discharge of this secretion. We know that iodine is indispensable to the performance of this function, and that the gland cannot go on performing it efficiently unless a sufficient amount of iodine be available to it for the elaboration and discharge of its secretion. When from any cause the supply of available iodine falls below a certain level, the demands of the tissues being normal, then the time comes when the gland's secretion is neither efficiently elaborated nor efficiently discharged. This is what happens in so-called "simple goitre," which is a state of diminished functional activity of the gland: a state which, having reached a certain degree, cannot always be rectified by correction of the iodine deficiency, although it may be set right by the injection of the gland's active principle, thyroxin. But if the supply of iodine be not at fault, and the demands for the gland's active principles increase beyond a certain point, then the organ will continue to elaborate its secretion and to discharge it into the circulation in amounts proportionate to the degree of stimulation. Here again a point may be reached when it may be assumed that there is an iodine deficiency relative to the demands of the body, and it is then that the administration of iodine in appropriate amounts will do good. It will do good by assisting the gland in the elaboration of the normal secretion itself or by bringing the gland more nearly to rest, increasing its iodine content and diminishing its blood supply. Conceivably, then, the thyroid may thereby be enabled to satisfy the demands of the body and to adjust the metabolic balance.

This, we gather, is the view taken by Dr. Fraser, who considers that in exophthalmic goitre there is "an iodine deficiency relative to the needs of the body"; and it would seem to follow that it is the outpouring of an excess of secretion deficient in iodine which exercises so profound an effect in increasing the metabolic rate. In this connexion it is of interest to recall Kendall's conclusion that the active part of thyroxin is not the iodine it contains in such large amount (65 per cent.), but the NH_2COOH group. Why, then, does not iodine continue to do good when the patient is again subjected to the stresses and strains of modern existence, of faulty food, and of infection? Surely because the stimulus to the thyroid's hyperactivity is then of a kind beyond the power of iodine to control. Dr. Fraser mentions the fact that the administration of iodine will prevent the compensatory hypertrophy of the remainder of the normal thyroid when three-quarters of the gland has been removed; he might have added, however, that it will not prevent the hypertrophy of the remainder when nine-tenths of the gland has been removed. In the latter circumstances the stimulus to increased activity of the fragment that remains is so great that no amount of iodine will lull it to rest. The condition of the thyroid gland in Graves's disease may be compared to that of the fragments which remain after removal of the major part of the normal organ. It is under the influence of some stimulus, or of some power, so great that iodine may or may not afford the gland some rest. When it does so in the cloistered security of the hospital ward, the gland's circumstances are more akin to those of the "one-quarter fragment," and iodine then prevents its overactivity, and those symptoms of the malady which are due to the outpouring of an excess of secretion are alleviated. When, on the other hand, the patient leaves the restful shelter of the ward, and meets again the stresses of life—physical, mental, metabolic, and infectious — the gland's circumstances become more akin to those of the "one-tenth fragment," which no amount of iodine will cause to rest; while doses of iodine that formerly availed may now do harm.

Though the term "stimulation" has been used in relation to the thyroid gland's hyperactivity in Graves's disease, the impetus to the gland's disorder may, in fact, be of quite a different order: possibly of a kind, as Marine's researches on the effects of ablation of the adrenal cortex would seem to suggest, which removes some restraining influence normally exercised over the thyroid's activity. Dr. Fraser says that a great merit of the proper use of iodine in Graves's disease is that it prepares the patient for thyroidectomy; but it does more than this, for it would seem to prepare the patient for the cure of the disease. It may be suggested that in the next series of cases reported from the medical unit of St. Bartholomew's Hospital—and may this be soon—the investigation will have been carried further still, and advantage taken of this effect of iodine, in restoring the metabolic rate and the heart rate and in preventing the loss of weight, to seize the opportunity to overfeed these patients with milk, cream, wholemeal bread, green leafy vegetables, and vitamins of all kinds, so that they may gain in weight as rapidly as possible. For if, indeed, Graves's disease be due to disorder of other endocrine organs besides the thyroid—and there is not much doubt of it—then it would seem that the only way at present known to restore them to health is by appropriate food, with repose of mind and body. In this connexion, and remembering the effects of loss of function of the adrenal cortex in causing thyroid hyperactivity with depletion of the gland's iodine store, we may recall the remarkable effects of faulty food deficient in vitamins on this organ, and of the effects of bacterial products upon it.

It is said that the value of writings is proportionate

to their capacity to make readers think. Dr. Fraser's address will have this effect. Whether or not what we have here said be near to or far from the truth, it seems clear that by the recognition of this effect of iodine in Graves's disease another trench has been taken in the attack on this remarkable malady.

CHRONIC MASTITIS AND CANCER.

No very important technical advance has taken place within the last thirty years or so in the radical treatment of cancer of the breast, and it seems as if we had come to the limits of what surgery can hope to perform in the cure of the condition. The cry, therefore, has been for earlier diagnosis, and many have hoped that, by more widespread knowledge amongst the public of the signs of the disease, cases would come to the surgeon at less advanced stages, so that radical operations might achieve an enhanced percentage of permanent cures. It is unwise to assume because a growth is very small, or has only been noticed for a short time, that a more restricted operation than usual will be effective, for the lymphatic dissemination in such cases may be surprisingly extensive, and probably most surgeons practise a wide removal, no matter how early the cancer may seem to be. Whether any method of popular instruction or propaganda will be successful in inducing the public to seek medical advice more opportunely is a question upon which opinions may differ, and the surgeon has to deal with the disease in such a stage as it comes to him, and not as he would like it to be. There can be little doubt that, owing to the equivocal nature of the early manifestations, an expectant policy is adopted far too often, with disastrous results. This is hardly the fault of the general practitioner, who is as eager as his surgical colleague to read the signs aright. Once a definite tumour is detected there should be no delay in having recourse to surgery, and probably in the vast majority of cases no undue delay occurs.

There are many who are convinced that future advance in the treatment of cancer of the breast must lie in the exploration of the mammary lesions before palpable growth formation has taken place. The surgeon frequently comes across borderland cases where he cannot be certain of the nature of the condition—it may be simple or it may be malignant. And the practice differs with different surgeons. Some treat these as if they were frankly malignant, and perform the complete radical operation. Such a proceeding, as it leaves nothing to chance, may be condoned even if, in the majority of instances, it is unnecessary. Others remove the mammary gland alone, and submit the specimen to the pathologist for examination, being guided as to whether a subsequent operation is desirable or not by the result of the pathologist's findings. Probably this is the most satisfactory and most frequently adopted routine. Others, again, remove a small portion merely and have it examined there and then by frozen section, arresting the proceedings until the verdict is given. Granting that in the hands of an expert reliable indications may not infrequently be obtained, the histological pictures so revealed are always too crude for absolutely certain interpretation, and even with properly prepared paraffin sections the most experienced pathologists are sometimes unable to give a verdict one way or the other. This is not surprising, as there is no sharp demarcation between the simple and the malignant. If we could pick out with any degree of certainty or even probability the precancerous conditions—that is, such as if left alone would inevitably become cancerous—surgical treatment would be infinitely more effective; but at present neither the surgeon nor the pathologist is in a position to do so. There are, to be sure, those who maintain that the condition generally called chronic mastitis is a precursor of, and frequently develops into, carcinoma; on the other hand, there are surgeons of considerable experience who hold that carcinoma is no more liable to arise in a breast affected by mastitis than in a mammary gland not so affected; and according to their opinions they remove the organ entirely, or only a portion of it, or even they may leave it untouched.

The term " chronic mastitis " is unsatisfactory, and a host of other names have been suggested: but still it has been sanctified by use, and to the clinician it connotes a fairly definite condition. To the pathologist, however, it is a very nebulous term, embracing practically every lesion which is neither an acute inflammation nor a true neoplasm, and he is further handicapped by the impossibility of choosing a standard for the normal breast of older women. In this field Sir Lenthal Cheatle (whose address appears in this issue at page 5) has laboured for several years, to the advantage both of the surgeon and the pathologist. By his methods of large sections he has clearly demonstrated how extensive the pathological changes are in a breast which is the seat of cancer. In the same organ there may be all degrees of hyperplasia of the epithelium right up to malignant neoplasia. It is to these concomitant features, which were not realized until Sir Lenthal pointed them out, that one must look for a sure indication of the precancerous states, and it is interesting to note that he has found the same features in some cases that were considered to be chronic mastitis. If we understand him rightly, he does not insist that chronic mastitis is liable to become cancer, but that within the group of lesions to which that term has been applied there are a certain number which are essentially neoplastic. Whether these can be separated off by clinical diagnostic methods alone is doubtful, but it is only by the careful study of the " mazoplasia " that the pathologist may hope to gain a clearer appreciation of the nature of the precancerous stages.

THE YOUNGER UNIVERSITIES.

Of the universities founded in England during the nineteenth century—a not inconsiderable achievement of that much maligned epoch—the majority grew out of or were preceded by a school of medicine. This is true to some extent even of London, though the foundation of that university was really a protest against the Test Acts by which at that time admission to the Universities of Oxford and Cambridge was limited. Durham is hardly an exception, nor is Sheffield, though before the institution of the university there the medical school was small. Manchester, Liverpool, and Bristol are not exceptions, nor is Leeds, and Sir Berkeley Moynihan has done well in his address, delivered during the jubilee celebrations, to recall some of the great achievements of the great men of the Leeds school. Their names we need not repeat; are they not to be read in the address published at page 36? They seem all to have been men of a certain sturdiness of mind and independence of judgement, a tradition which has been carried down to the present day. The " Heydays " of Leeds surgery began in the eighteenth century, and the first William Hey had the courage to challenge the supremacy of London, which was then the metropolis of surgery, owing

largely to the work of John Hunter's pupils, among whom, it is to be remembered, William Hey himself was numbered. Whether or not the late Mr. Pridgin Teale's boast that the Leeds Infirmary was the first hospital in England to put Listerian methods to the test is well founded (we fancy University College Hospital, London, must have run it very close), it is certain that some of the surgeons in Leeds very early appreciated the importance of Lister's theory and practice. One of Mr. Teale's contemporaries of whom mention is made in the address—Mr. C. G. Wheelhouse, a surgeon of much ingenuity and resource—was a strong friend of the British Medical Association; he was Chairman of its Council for three years (1881-83), and its President when it held its Annual Meeting at Leeds in 1889. The Leeds School of Medicine was founded in 1831, though teaching had been given in the town at an earlier date. The Yorkshire College was established as a college of science in 1874, and the two institutions were united in 1884. The united body formed a part of the Victoria University from 1887 to 1904, when the University of Leeds was founded by Royal Charter. It now has many faculties—arts, science, technology, engineering, commerce, and many subsidiary faculties—but the School of Medicine still maintains itself as one of the chief, as it is the oldest, of its departments. The laboratories of the University are bewildering in number, and not a few of them are related to the many industries of the industrial region of which Leeds is the centre. It attracts students from abroad, and altogether the number of those working for its degrees or diplomas exceeds a thousand.

A LISTERIAN ORATION OF CANADA.

LISTER is one of the immortals. Lord Rosebery many years ago devoted to the memory of Robert Burns one of the finest orations he ever delivered. In the course of it he conjured up a centennial roll-call of the men who have been regarded by their contemporaries as secure of immortality, and he speculated as to how many of these would, after hundred-year intervals, fail to answer to their names. But as regards his own hero, the ploughman poet, he prophesied that the *Adsum!* of Burns would sound clear and strong all down through the coming centuries. So it will be with the name of Joseph Lister in the list of benefactors of mankind. In the ranks of medicine, no more than Harvey or John Hunter does he need an annual oration to perpetuate his memory. But just as the pride and gratitude of the profession to which they belonged have led to the commemoration of these great men, so it is appropriate that Lister's services to humanity should be made the occasion of public oratory. Influenced by such considerations, there has been formed within the Canadian Medical Association a Lister Memorial Club, and Dr. John Stewart of Halifax, who was one of Lister's dresser-clerks, and who accompanied the master when he left Edinburgh for King's College, London, was appointed by the Council of the association to deliver the first Listerian Oration. The occasion was the annual meeting of the association at Ottawa, and the date June 18th, 1924. The oration has now been published as a special number of the Association's *Journal*, with an appropriate and appreciative foreword by Dr. A. D. Blackader. It constitutes a most suitable introduction to what will no doubt be a long series of deliverances on surgical work which would never have been done, and surgical problems which could never have arisen, had it not been for Lister. The orator begins with a brief account of his hero's early days, touches on his holiday studies in natural history and chemistry, his education in surgery at University College, his going to Edinburgh with the intention to stay there for a few weeks to see the practice of Professor Syme, and how that stay was prolonged for nearly seven years, his appointment to the Glasgow chair of surgery in 1860, his succession to Syme in Edinburgh in 1869, his visits to the Continent and America, his transfer to the professorship left vacant by the death of Sir William Fergusson at King's College in 1877, and his gradual triumph over difficulties in the world-wide acknowledgement of the greatness of his work. But it is impossible to follow Dr. Stewart through his enthralling story, which combines personal reminiscences with sketches of the later events in Lister's career, and displays not only the qualities of the surgical scientist, but the high Christian character and personal distinction of the man. Dr. Stewart has indeed worthily inaugurated what will now become the stated annual celebrations of the great surgeon with whom he had the good fortune to be so closely in contact both as master and friend.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

IN the days of the Local Government Board medical officers of health were accustomed to receive at the end of each year a memorandum from the medical officer of the Board with respect to their annual reports. The memorandum was couched in very general terms, although certain subjects were mentioned as to which it was desirable that detailed information should be given. During the years of the war the Board suggested that, having regard to the necessity for strict economy in the use of paper and in demands on printing establishments, the annual reports should be confined to statistical records and urgent matters which had affected the public health during the year. On the termination of the war the whole question of these reports was considered by the Ministry of Health, and, after conference with the Society of Medical Officers of Health in 1921, it was decided that a full and detailed report would only be required normally once in five years. In a circular (No. 540) as to the contents and arrangement of the annual reports of medical officers of health, issued on December 18th last by the Ministry of Health, it is intimated that the report for 1925 will be of this detailed character, or, as it is described, a "survey report." In this document the medical officer of health will be expected to deal comprehensively with the measure of progress made in the area during the preceding five years in the improvement of public health; with the extent and character of the changes made during that period in the public health services of the area; and with any further action of importance in the organization or development of public health services contemplated by the local authority or considered desirable by the medical officer of health. The report for 1924 is to be an ordinary report on the lines laid down by the Ministry in circulars issued annually during the past three years. The current circular is a revised edition of its predecessors, though the alterations and additions are, for the most part, not of primary importance. In paragraph 3 it is made clear that information should be given with regard to maternity and child welfare schemes and schemes for the treatment of tuberculosis or venereal diseases, and not merely with respect to centres or institutions. The Registrar-General will continue to supply, as he first did for 1923, information about the number of cases of certain infectious diseases notified during the year. Information is also asked for now with regard to the administration of the Milk (Special Designations) Order and the Condensed and Dried Milk Regulations. An important alteration has been made in the housing section of the appendix. Details are asked for as to the "Number of dwelling-houses which were rendered fit *after service of formal notices*" under Section 28 of the Housing, Town Planning, etc., Act, 1919, and of the "Number of dwelling-houses in which defects were remedied *after service of formal notices*" under Public Health Acts. The words in italics are introduced for the first time this year, and should assist in making the records of medical officers of

health more comparable than has hitherto been the case. A medical officer of health is required by the Factory and Workshop Act, 1901, to report annually on certain matters connected with the administration of the Act, and until 1920 the Factory Department of the Home Office supplied medical officers of health with a form (572) containing tables for their guidance in presenting information regarding inspections, formal notices, prosecutions, and defects found and remedied. This form has been reissued this year. A summary of these tables, which it may be expected will appear in due course in the report of H.M. Chief Inspector of Factories, will serve to emphasize the important position held by medical officers of health with respect to the sanitary conditions of factories, workshops, and workplaces.

THE DANGERS OF VERONAL AND ITS DERIVATIVES.

AT an inquest held recently by the deputy coroner for West London with regard to the death of a lady, aged 41, Mr. John Webster gave evidence to the effect that death was due to veronal poisoning. Sir William Willcox, who had seen the patient before death, said that the danger of the veronal group of poisons was not fully realized. This class of drugs ought to be made subject to the restrictions of the Dangerous Drugs Act; the number of deaths was greater than the Registrar-General's returns showed. A craving for this class of drugs arose if they were taken habitually, and a very definite form of mental deficiency, accompanied by delusions and inarticulate speech, might be produced. After a very large dose of veronal pneumonia supervened within about twelve hours. This is a point, we may observe, to which Sir William Willcox called attention in a paper read at the International Medical Congress in London in 1913. At its meeting last month the Council of the British Medical Association had before it a communication from the Home Office stating that the Home Secretary had under consideration the advisability of bringing under the Dangerous Drugs Act the group of drugs derived from barbituric acid (veronal, proponal, medinal, luminal, dial, etc.). A small informal departmental conference, attended by Sir William Willcox and representatives of the Royal College of Physicians, held recently, suggested, we understand, that in the event of the barbitone group of drugs being brought under the Act the extent of the control should be limited to preventing their sale to the public except on the prescription of a duly qualified medical practitioner. The Home Secretary invited the Association to send representatives to a conference to be held this month to consider a draft Order in Council and draft regulations. The Council accepted the invitation, and nominated Mr. E. B. Turner, Chairman of the Medico-Political Committee, Dr. J. W. Bone, a member of that Committee who has given special attention to the Dangerous Drugs Act, and the Medical Secretary, to represent the Association at the conference. We publish elsewhere (p. 56) a pathetic letter from a member of the medical profession who has recently had a distressing experience of allonal.

AUTO-HAEMOTHERAPY AND SKIN DISEASES.

TRANSFUSION of blood (hetero-haemotherapy), which consists of the injection of the blood of one subject into another, has been known to medicine for nearly three centuries. Auto-haemotherapy, however, which is the reinjection of a certain quantity of the patient's own blood into himself, is more modern. Spiethoff of Jena first had the idea of treating certain dermatoses by the injection of the patient's own serum. It was later suggested by the French dermatologist Ravaut that blood should be used instead of serum. Hebrant, Antoine, and Liégeois[1] have recently recorded the results of some interesting experiments on the skin diseases of dogs conducted along these lines. Their technique consists in the aspiration of 1 c.cm. of citrate solution into a 10 c.cm. hypodermic syringe, which is then filled with blood drawn from the jugular vein. This citrated blood is injected subcutaneously in the costal region, or intramuscularly in the gluteal region. They do not attempt to explain fully the rationale of their method, but they think that it may be anti-anaphylactic in nature. Every anaphylactic reaction is the result of a previous sensibilization. In the case of a reaction with a cutaneous localization the toxic substances reabsorbed in small doses have the effect of the preliminary injections. Normally these reabsorbed doses are dealt with by the liver and other organs. When their functions are in abeyance an anaphylactic shock is set up, which, although far removed from the skin, has nevertheless cutaneous localizations (vaso-dilatation, urticaria, pruritus). If this is so, auto-haemotherapy may be considered to be an anti-anaphylactic method. Hebrant and his associates conceive this action as a form of protein therapy, depending on the production of a protein shock (without preliminary sensibilization), the manifestations of which are confined to the blood stream. The parenteral introduction of a non-specific protein brings about a physical modification of the complex blood colloid (colloidoclasia). The reinjected blood has not the same physical nature as it had before being drawn: its mixture with the citrate solution, contact with the walls of the syringe, and cooling, have rendered it a different colloid as compared with the circulating blood, which is thus returned to its normal state. This supposition seems to be pure hypothesis, and further work is needed for confirmation. These workers claim to have treated successfully a number of cases of eczema, alopecia, and pruritus by this method. They conclude that auto-haemotherapy is indicated in the case of all non-toxic and non-parasitic pruritus, and that it is a valuable adjuvant in chronic, but not in acute, eczemas in the dog. Panisset and Verge[2] had previously arrived at similar conclusions. On the other hand, several observers have found that this new therapeutic measure has little or no effect, so further developments will be awaited with interest.

[1] *Ann. Méd. Vét.*, 1924, pp. 305-12.

ENZOÖTIC JAUNDICE IN DOGS.

CANINE enzoötic jaundice is a very common disease in this country, as elsewhere, and causes considerable losses to dog breeders and masters of hounds. Until recently comparatively little was known about it, and, indeed, most people considered that it was merely a variety of distemper. It is characterized by the production of a large amount of haemoglobin in solution, with the consequent clinical picture of jaundice. Other symptoms are vague, sometimes there are none, and the lesions are far from constant; accordingly diagnosis is very difficult. In the last few weeks, however, Okell, Dalling, and Pugh have been able to demonstrate that the disease, like that sometimes, in man, called Weil's disease, is caused by *Leptospira icterohaemorrhagiae*, a spirochaete normally attacking rats. Presumably the disease is transmitted to dogs by the bite of infected rats—a presumption which is supported by the fact that jaundice is commonest in pups of hunting and terrier breeds. The disease in man has excited the interest of many workers, and a serum has been prepared from horses which has been found to exercise a considerable prophylactic and curative action in dogs. So far no human cases have been found associated with the disease in the dog, but the possibility of infection of man from this source cannot be altogether ignored. The connexion between enzoötic jaundice and canine distemper is a very vexed question. It is often very difficult to separate them on clinical grounds, and hitherto laboratory diagnosis has not been possible. The opinion is gradually gaining ground

[2] *Rev. Gén. Méd. Vét.*, October, 1923.

that distemper is not a single clinical entity at all, but may consist of a number of different protozoal and bacteriological diseases. The whole question, however, becomes more complicated as fresh facts are discovered. It will be remembered that the Medical Research Council undertook the study of distemper, not only to help to elucidate the canine problem, but in order to accumulate data for the study of human infections suspected to be due to so-called ultramicroscopic virus. The disease is one of such importance that we hope the lack of immediate success indicated in the interim report of last spring will not discourage those engaged in the inquiry.

TUBERCULOSIS REGULATIONS.

THE compulsory notification to a medical officer of health of cases of tuberculosis came into force in England and Wales in 1909 under regulations made by the Local Government Board, the application of which was limited to cases of pulmonary tuberculosis occurring among Poor Law patients. A few years later this limitation was removed, and since February 1st, 1913, it has been the statutory duty of every medical practitioner to forward to the medical officer of health certain specified particulars of all cases of tuberculosis—pulmonary and non-pulmonary—attended by him. The medical officer of health is required to keep a register of the cases notified to him, and to take steps to make it a correct record of the number of persons in his district who are suffering from tuberculosis. Notification certificates wrongly addressed to him must be sent by him to the appropriate district, and at least once every three months he must revise the register by erasing the names of deceased persons and of those who have removed from his district. In many districts difficulties have arisen in keeping a sufficiently correct register to render it of much use for statistical purposes. On the one hand, a certain proportion of cases are not notified and so do not get on the register, and, on the other hand, names are left on the register which should be expunged. In the first category are patients attending a dispensary who escape notification because the tuberculosis officer thinks a notification certificate has already been transmitted. In a circular (549) recently addressed to sanitary authorities in England by the Ministry of Health the opinion is expressed that a tuberculosis officer should immediately notify each case in which he diagnoses tuberculosis unless he ascertains definitely that a practitioner has notified, or will notify, the case. In the second category are those who have died or who have removed from the district, and those in whom the diagnosis of tuberculosis has not been established or are said to have been cured. The name of a deceased person may be kept on the register because, quite legitimately, his death has been certified as due to some other cause. With a view to minimizing this source of error the Ministry of Health, in a circular (549A) recently addressed to county councils and tuberculosis joint committees in England, suggests to those bodies that their medical officers should communicate to medical officers of health any information they may have as to deaths or removals. As regards cases the diagnosis of which has not been established, the Ministry considers that no case should be removed from the register except with the assent of the notifying practitioner unless he is no longer available for consultation. The views of the Ministry as to cured cases are important. They are "that the removal of a case from the register as 'cured' is justified in pulmonary cases in which for a period of five years there have been no symptoms of tuberculosis and no signs of tuberculous disease, except such as are compatible with a completely healed lesion, and sputum, if present, has been free from tubercle bacilli; and in non-pulmonary cases in which three years have elapsed without any signs or symptoms of active disease." In order still further to assist in an accurate compilation of the tuberculosis register the Public Health (Tuberculosis) Regulations, 1924 (England and Wales), have been made by the Minister of Health, and they came into operation on January 1st, 1925. They require the medical officer of health to furnish the county medical officer of health at the end of every quarter with a statement showing the number of cases, distinguishing between males and females and pulmonary and non-pulmonary cases, on the register at the commencement of the quarter, the number notified and removed from the register during the quarter, and the number remaining on the register at the end of the quarter. As regards the removals from the register, the names and addresses of those removed must be given, and the reason for the removal.

THE WALLER MEMORIAL.

AUGUSTUS WALLER died in March, 1922, and his wife, whose fatal illness began before his sudden death, did not long survive him. As Sir Edward Sharpey-Schafer said at the meeting to inaugurate the memorial fund, Waller's physiological work was extraordinarily original and always accurate, even when working over new ground; his wife was a perfect helpmeet, taking the most lively interest in his work and habitually acting as one of his assistants. A desire to commemorate their lives arose in the minds of physiologists and their many friends, and it was natural to propose that the memorial should be associated with the London School of Medicine for Women, for Waller had been at one time lecturer in physiology there, and his wife was first a student, then demonstrator, and later a member of its council until her death. A sum of £2,000 has been subscribed by 206 donors, and has been paid over to the council of the school to invest, and to apply the interest for purposes of scientific research, to which both Waller and his wife owed lifelong devotion. Waller was for nineteen years lecturer in physiology at St. Mary's Hospital Medical School, London, and a further sum of about £105 has been subscribed towards a memorial to Waller in that school, to take the form of a Waller research room. As the larger scheme has clearly appealed more strongly to the friends of Dr. and Mrs. Waller, it may be necessary to reconsider the proposal with regard to St. Mary's Hospital Medical School, and in that event the donors will be consulted as to the best method of applying the money they have subscribed.

THE TEAM SYSTEM IN PHYSICAL TRAINING.

THE Board of Education has issued a circular[1] containing suggestions intended to supplement the notes on the "team system" contained in Appendix B of the Board's Syllabus of Physical Training, 1919. The team system is the name given to a method of organizing a class in teams, which work together under their leaders in games and exercises, and compete with other teams. Physical training through team work combines healthy individual exercises with the education of the children to become members of society. Organized team games provide an outlet for the spirit of competition and an opportunity for correcting the extravagance of individual competition by subordinating it to the social spirit. In order that competition may have a social value it should have a co-operative basis, and the competing unit should, therefore, be the team and not the individual. The quality rather than the actual result of each competitor's efforts becomes the standard of value. The less capable are encouraged by the thought that their efforts are of service to the remainder of the team, while the more highly endowed realize their responsibility to give of their best for the common good. Suggestions are given for the introduction of the team system into all but the smallest rural schools.

[1] London: H.M. Stationery Office. Price 1d. net.

THE CONTRIBUTIONS OF LEEDS TO SURGERY.

AN ADDRESS DELIVERED AT THE COMING OF AGE OF THE UNIVERSITY OF LEEDS ON DECEMBER 8TH, 1924,

BY

SIR BERKELEY MOYNIHAN, BT., LL.D.

THE craft of surgery is as old as mankind. The earliest human remains show that the art of the surgeon had been practised upon them. Among the hoary superstitions by which men have always been beguiled, that which is concerned with belief in the "possession" of the human body and mind by demons is perhaps the most interesting. The ancient rites practised for exorcism have survived to the present day. In the *Yorkshire Evening Post* of August of this year an account appeared of the casting out of devils from a young girl in Tuscany. For the relief of this malady of "possession" the aid of the surgeon was not infrequently invoked in prehistoric times. Wherever skulls of the Neolithic period have been discovered, openings made by the trepan have been found in them. The apertures are not due to accidents after death, for the shape of the fragments removed is always similar, the parts of the skull in which they are found are often the same, and the edges of the gap show that the discs of bone must have been removed during life, for healing had clearly taken place. The piece of bone removed in this way was worn as an amulet. It is interesting to learn that the operation of trepanning is still practised in the ancient way, to permit the escape of evil spirits confined within the skull, by the natives of New Ireland, to the east of New Guinea. Of no art, then, are there more ancient records than of the art of surgery.

Many of the diseases for which the aid of surgery now is asked are as old as human history. In the bodies of the mummies found in Egypt evidences of gall stones, of appendicitis, of tuberculous disease of the bones, including the spine, of sarcoma of bone, are plain to be seen.

The science and the art of surgery owe their twin birth to Hippocrates, under the fertile inspiration of the Socratic philosophy. His power of accurate observation, combined with ingenuity and integrity in the exercise of the faculty of reason, have rarely, if ever, been surpassed by any man. So vast was the range of his observation, and so amazingly accurate his comments, that the minds of many generations of his successors were fully occupied in the consideration of the intellectual legacy he had bequeathed to them.

It was not until centuries later that Galen, a vain, ambitious, garrulous, and rather quarrelsome man, brought experiment to bear upon the problems of physiology and of medicine. As Hippocrates was the parent of inductive reasoning, so was Galen of the deductive method. Galen's experiments were, of course, confined to the bodies of animals, and it was by "analogy" that he applied their results to the bodies of men. Though he was the first of experimenters, he asserted that speculation should lead experience. If his reasoned conclusions were not supported by experiment it was because the experiment was fallacious. Yet no man has dominated the mind of the world for so long a stretch of time as Galen. For 1,500 years his authority was unchallenged. Men sought for all truth, and for all experience, not in the study of the living patient, but in the writings of this dead philosopher. The Fathers of the Church have never had their writings more implicitly accepted, their doctrines more loyally observed, and their errors more confidently believed, than these Fathers of Medicine, Hippocrates and Galen. For nearly 1,500 years the writers on medicine preserved with reverence the old tradition and the ancient knowledge; they discussed every device and at interminable length they elaborated the meanings of the old scriptures; they tortured new meanings out of old phrases; they were diligent in dressing old words anew, and their scholarship was judged by their ingenuity and infinite prolixity in so doing.

From the long slumber of nearly 1,500 years medicine was awakened by William Harvey. The influence of great teachers in inspiring great students was never more happily shown than when the great anatomist Fabricius became the loadstone that attracted Harvey to Padua. The discovery of the circulation of the blood, a discovery on the very edge of which so many men had trembled, is the great glory of English medicine. But it was a discovery made possible by the example and the encouragement of a great teacher. Harvey was often wearied and despondent. He found the tasks upon which he laboured so arduous and full of difficulties that he was tempted to think with Fracastorius that the motion of the heart was only to be comprehended by God. The discovery has been claimed for many men and many countries. But a strict examination of the evidence leaves no doubt that Harvey's claim is now beyond dispute. The unhappy Servetus had recognized the existence of the pulmonary circulation, and was in consequence burned as a heretic, with all his works, by Calvin, at Geneva in 1553. To controvert the teaching of Hippocrates and Galen was not error only, it was heresy. It required a rare and reckless courage for Henry of Mondeville to say that "God did not surely exhaust all His own creative power in making Galen."

Harvey, Galileo, Bacon, Gilbert, physician to Queen Elizabeth, confirmed in their several ways the value of experiment in research. But the method was to find, as yet, no place in surgery, for the foundations of surgery were not yet laid. No knowledge existed as to the nature of the diseases by which man was so grievously afflicted. The morbid appearances of the organs, the processes by which they were attacked and laid waste, were almost unknown. It is due to Morgagni, and to our own John Hunter, that this defect was made good. The science of pathological anatomy was founded by them, and their investigations were carried so far that, nearly a century and a half later, we may still read their works with advantage.

The first of the surgeons in Leeds was a pupil of John Hunter. William Hey was one of the founders of the Leeds General Infirmary in the year 1767. At the age of 14 he had been apprenticed to Mr. Dawson, a surgeon of Leeds, much against his own inclination, for he wished to follow the sea. He studied at St. George's Hospital, and so proper was his conduct, so high his intelligence, and so assured his future, that a gentleman offered him his daughter in marriage. Hey, it is said, gave "the same prolonged consideration to this suggestion as he was accustomed to give to all matters of importance," and declined the offer. When he returned to Leeds to practise surgery the outlook seemed unpromising. Mr. Lawman, the chief surgeon of Leeds, had only once operated for the stone, and had only once amputated a limb. In the year 1767 Hey performed each of these operations four times. In the years 1800, 1803, 1805, and 1809—the Leeds General Infirmary being, as now and always, in want of funds—he gave anatomical demonstrations upon the bodies of criminals, and handed the funds over to the Infirmary. As we look back and endeavour to measure the value of the work done by the pupils of Hunter, we may safely claim that Hey was not inferior to any of them, not even to Abernethy or to Astley Cooper, the handsomest and most popular surgeon of his time. London was then the metropolis of surgery. Hey was the first to challenge this supremacy.

The eponymous contributions of William Hey to anatomy and to surgery outnumber those of any surgeon. There are two "Hey's amputations," one in the foot and one in the leg; a "Hey's ligament"; "Hey's hernia"; "Hey's internal derangement of the knee"; the "fungus haematodes of Hey"; and "Hey's saws" are in use to this day. Hey founded a dynasty of surgeons. His son William Hey, and his grandsons William Hey, Samuel Hey, and Edward Atkinson, who served in the Crimea, were all surgeons to the Leeds General Infirmary. His great-grandson, Dr. Wawn of Ilkley, was a student of the school. Hey was a close friend of Priestley, and their amity was undisturbed by their not infrequent theological controversies. Hey died in 1819 of diverticulitis of the colon.

The names of two great surgeons of the days contemporary with the "Heydays" of Leeds surgery have survived. Samuel Smith (1790-1867) was held in most affectionate remembrance by Mr. Teale and Mr. Jessop, who regarded him as the most "common-sense man" they encountered in their younger days. He was surgeon to the Infirmary for forty-five years, in general practice; and he

lectured for thirty-five years on midwifery at the hour of 7 a.m. A widow, anxious as to the engagement of her only daughter to a youth with whom she was unacquainted, took counsel with Sam Smith, and confessed her ignorance of the tests to which the youth should be submitted. "Invite him to breakfast," said Sam Smith, "and if he eats a good meal you may safely allow him to marry your daughter." A letter is extant in which he invites a colleague to breakfast at 5.30 a.m. He was a pioneer in the operation of excision of the astragalus; and his portrait in the board room of the Infirmary will keep this claim for ever before our eyes. He seems to have been every man's friend.

Thomas P. Teale (1801-1867) was the son of a successful Leeds practitioner. He was trained at the United Borough Hospitals, and qualified in 1823. He was elected surgeon to the Leeds Dispensary in 1824, and to the Leeds General Infirmary in 1833. He served for thirty-one years. Like William Hey the first, he had lost one eye in childhood. He excelled in the operations for stone, lithotrity as well as lithotomy, and in plastic surgery. He was active in inquiry and research, and he was eager in pursuit of new plans of treatment. He enriched our museum. He was zoologist as well as geologist, writing lengthy papers on each subject; and salmon fishing was the recreation in which he, like many other members of our staff, excelled. He invented a new method of amputation, which to this day is known as "Teale's amputation," and is practised more often than its merits deserve. The reasons which made it so successful in the old days hold good no longer; and the long anterior flap is wasteful. Teale also wrote a treatise on hernia, a sound textbook much quoted in its day. He was a Fellow of the Royal Society, and one of the founders of the Leeds Philosophical and Literary Society.

Throughout all these centuries, from Hippocrates to Hunter and to Hey, the lot of the individual patient was, however, not very greatly improved. More, far more, was known of the causes, symptoms, and morbid processes of disease, but in direct consequence of all this little advantage came to the patient. An operation practised for the relief of any disease was attended by a mortality almost prohibitive, and by a delirium of pain that only the stoutest hearts could face unflinchingly. Anaesthesia, whose merciful discovery we owe to Morton of Boston (October 26th, 1846), robbed operations of their most menacing terrors, but many survived the operation only to perish quickly from its effects. And the effects were terrible beyond belief. A visitor to Paris during the Crimean war wrote: "We can recognize at a distance a surgical hospital owing to the stench of the human putridity it contains." Bell of Edinburgh spoke of a hospital as a "house of death." The death rate from all surgical conditions was very high: the simplest procedures, carried out with superb craftsmanship, became deadly because of that infection in the wounds which nothing seemed able to prevent or to control. And then Lister came and all was changed.

It is perhaps impossible for the surgeons of to-day to realize the magnitude of the change that has come over surgery because of the work of this one man. Operations which were attended by a prohibitive mortality are now performed without a thought of mischance; and operations then beyond the power of the most reckless to imagine are matters now of everyday routine. Lister made the old operations safe and the new ones possible. And I have made the claim for him which understates the truth, that he has been the means of saving more lives than all the wars of all the ages have sacrificed. Leeds at this moment, too, had its standard-bearer in the new great fight that was to be waged against diseases hitherto unassailable. Thomas Spencer Wells (1818-1897) was a student of the Leeds School of Medicine, acted as an unqualified assistant to a parish surgeon, and attended the lectures of William Hey the second and the elder T. P. Teale. He had been apprenticed to Dr. Michael Thomas Sadler of Barnsley, nephew of the distinguished author of that treatise, *On the Law of Population*, which attracted the attention of Macaulay. After qualifying, Spencer Wells served in the navy until the age of 30, when he retired and went to London to practise. In the year 1854 he assisted Baker Brown to perform the operation of ovariotomy; both were discouraged by the death of the patient. In January, 1855, Spencer Wells sailed for the Crimea, and there learnt that "a man's abdominal walls might be lacerated by fragments of shell, his intestines protrude for hours till they were covered by dirt, and yet that after careful cleansing of the cavity and accurate closing of the wounds complete recovery was possible."

In 1856 Spencer Wells returned to London, and in December, 1857, attempted his first ovariotomy; the patient died. The second patient, operated upon in February, 1858, happily survived, and so the way was opened for the intrepid advance which Spencer Wells was eager to make. His success was almost incredible, having regard to the fact that his early operations were performed before Lister's work began, and that the opposition of his colleagues was unrelenting. The moral courage required to persist in his efforts may be inferred from the opinion expressed by the most influential medical review of the day, that the operation was one which, "though it may excite the astonishment of the vulgar, calls neither for the knowledge of the anatomist nor the skill of the surgeon," and that "whenever an operation was performed so fearful in its nature, often so immediately fatal in its results, a fundamental principle of medical morality is outraged." Wells, undismayed, pursued his course, telling with perfect frankness the story of his successes, and of his failures, and at last led the medical profession to recognize the value of his work. He was the great pioneer in all the stupendous advance that the art of surgery has made in the last fifty years. Ovariotomy being made safe, other abdominal operations were attempted, and error in diagnosis was not without its value. Spencer Wells, in operating upon a case of "ovarian cyst," found that the fluid was free in a peritoneal cavity whose walls were studded with tubercles. And the surgical treatment of tuberculous peritonitis was inaugurated at that moment. In operating in 1887 upon a young girl, jaundiced from her birth, for the removal of a "fibroid tumour of the uterus," the tumour was recognized as an enlarged spleen. With the quality so characteristic of Leeds surgery of meeting a difficult situation with courage and ready resource, the spleen was removed. The jaundice soon disappeared, and a new chapter in our knowledge of splenic disease was opened, and for the first time a patient suffering from haemolytic jaundice was cured.

The minds of men are too often repelled by novelty. It is perhaps not so much the new thing as the new-fangled thing which excites opposition. And of opposition Lister received full measure. His theory and his practice alike were new-fangled, and the assaults upon both were vicious and unrelenting. The attitude taken by the surgeons of Leeds is interesting. The older men were sceptical as to the truth of Lister's teaching: the younger discussed it with enthusiasm, tested it, proved it, and applied it. The fierce opponent to it was Thomas Nunneley (1809-1870). After he was qualified Nunneley went to Paris "to increase his professional knowledge." On his return he applied for the post of house-surgeon at the Leeds General Infirmary, and was not elected. He realized at this time that there was an opportunity for the practice of ophthalmic surgery in Leeds, and he applied for, and obtained, the post of surgeon at the Eye Hospital, and for twenty years worked in Leeds with "eminent success." Then in 1864 he was appointed surgeon to the Leeds General Infirmary. His most important work was *An Essay on Erysipelas*, published in 1831, and again in 1841. In 1869 he delivered the annual address in surgery before the British Medical Association. The address occupies thirteen pages of the JOURNAL. It is well written in a vigorous, graceful, if rather ornate, style; but it contains a bitter attack on the methods of Lister. Allusion was made to the practice of his colleagues and their application of the principles of the antiseptic treatment, and Nunneley asserted that "for every successful case that they could show with it, he could show as good a one without it." He then went on to say that lately the omission of the treatment, even in large operations, had been more and more frequent, until its use had become the exception instead of the rule—

a change which, had "any marked benefit resulted therefrom, most certainly would not have happened." Now this was carefully calculated to wound the members of the staff. For, as Mr. Pridgin Teale always assured me, the Leeds Infirmary was the first hospital in England to put the practice of Lister to the test; and the improved results from it, even in its crudest forms, convinced the staff of the accuracy of the hypothesis upon which it was based. A flat denial of Mr. Nunneley's statement followed. A letter from Mr. Teale to Mr. Lister was published three weeks later in which it was categorically stated that "Mr. Nunneley was in no sense justified in making such a statement; we still use and have as much confidence as ever in antiseptic treatment," and that "any want of success in our practice may fairly be attributed to imperfections in carrying out the rules." Mr. Nunneley, though urged by his friends to retract, made no reply. Nunneley was the author of an operation for cancer of the tongue which bore his name (BRITISH MEDICAL JOURNAL, 1866, ii, 493). It was certainly the quickest, neatest, and safest of all the operations practised in that day. My father-in-law, Mr. Jessop, was apprenticed to Mr. Nunneley. I have heard much of those times in many talks. Mr. Nunneley was a man not without ability of the ready-witted kind. It is interesting to remember that he appeared in defence of Palmer, found guilty of poisoning Cook by strychnine in 1856.

His son, John Nunneley, was ophthalmic surgeon to the Leeds General Infirmary, and in his earlier days demonstrator of anatomy at the school. Infinite reiteration was the secret of his success as a teacher. I can still hear him say, "The cribriform fascia, gentlemen, the cribriform fascia is the deep layer, the *deep* layer of the superficial fascia; the deep layer is the cribriform fascia, the deep layer of the superficial fascia." He was a silent, reserved man, and an excellent chief for whom to work. I was his dresser and enjoyed my days with him, and learnt much from him.

Surgery was now equipped for its great adventure. The science of pathological anatomy had established upon the only sure foundation our knowledge concerning the morbid processes responsible for the symptoms of which a patient made complaint and for the signs which were disclosed when an examination was made. Treatment could therefore deal with structural changes which had been carefully studied. Operations were rendered painless by anaesthesia, and safe by the application of the antiseptic method. The advance that surgery has made in its relief of human suffering, and the prolongation of human life, is incomparable. Nothing that has happened in the world since the birth of time has meant so much in matters of human happiness and welfare. What is the part that Leeds has played in all this great revolution? At the time when Lister was introducing his methods Mr. Wheelhouse (1826-1908) and Mr. Teale (1832-1923) were surgeons from 1864 to 1884. Both contributed new thoughts and new methods to surgery. None of us who knew Mr. Wheelhouse are ever likely to forget him. He was the most punctual man alive. Arriving at the Infirmary less than one minute before eight in the morning, he raised his hand to arrest the porter hastening to sound his bell, and admonished him to wait for the town-hall clock. His bell and the hour struck together. His demeanour was of the most solid gravity: his speech slow and of a solemnity that made one listen with awe to the emphatic announcement of the time of day or the state of the weather. I heard him speak also at medical meetings. What he said seemed, as one afterwards recalled it, to contain no message of any value, but one almost held one's breath as one listened to its massive and deliberate utterance. I saw him operate on a few occasions only; he moved, as he spoke, with the utmost deliberation and emphasis. On one occasion I helped him in a very minor biblical operation. I gave the baby chloroform and assisted at the same time. The operation was done in the ward, and as he walked away with the same brooding sense of the vast and profound significance of every act, I listened to a minutely detailed account of the difficulties that had been encountered in this very operation; of cases in which the operation, full of hazards, had been abandoned by no less a man than Tom Nunneley; and of the deaths that had followed upon delayed haemorrhage. By the time we stood upon the doorstep I was the victim of a profound nervous exhaustion, and I felt that the least I could do, in view of the threatening dangers ahead of me, was then and there most solemnly to vow that never would I suffer my own slender skill and my unripe experience to embark upon so menacing an operation as that which I had just witnessed.

Once as I walked past the theatre door with him he asked who was operating. I said "Mr. Teale; and the operation a lithotrity." He stopped at once, and with a gentle push upon my arm he bade me enter the theatre and watch "the most beautiful little hands in England" at work. The description was not, I think, inaccurate. Wheelhouse's originality was shown in his suggestion of a new method for dealing with stricture of the urethra. "Wheelhouse's operation" is known to this day, and if not practised with such frequency as formerly it is because the conditions requiring it are prevented by more careful treatment of the disease in its earliest stages. Mr. Teale and Sir Clifford Allbutt formed the first alliance known to me in this country. They were the pioneers of "team work." Sir Clifford, the most deeply learned physician of this day, master of a style of English which for sheer beauty and majesty is perhaps unmatched by that of any scientific author of our generation; an orator whose speech makes Time seem hasty; a cultured, upright, English gentleman, is the pride of the school he served so long and loves so well. Mr. Teale was the authentic product of Winchester and Oxford, and I know nothing better than that. He was the flawless example of intellectual and moral integrity. He was modest, cautious, reserved; free from any jealousies, ready with words of encouragement, and an occasional word of praise. He had not a creative mind, and we owe no large conceptions to him. His advances were slow but well assured, and he had never to turn back. He gave the utmost devotion to any subject which engaged his eager attention, and though conclusions were slow in finding expression, they became articles of steadfast faith with him. He preached a very noble gospel. The estimate which Mr. Wheelhouse made of his technical skill was not over-generous. He had the daintiest hands, the gentlest touch, the most sensitive movements. He was the first to deal with "scrofulous glands." When in London he was a pupil of Sir William Bowman. Up to the end of his active life in surgery he operated upon ophthalmic cases, and he devised a new method for the extraction of cataract.

He was a pioneer in domestic sanitation, and his book on *Dangers to Health* became a classic. For his work on hygiene he was made F.R.S. I learnt much from Mr. Teale, for whom I had a deep affection. He was a most courtly, truthful, upright gentleman—a man who honours his calling, and whose noble example is not soon forgotten.

Mr. Jessop (1837-1903) was beyond question the most popular practitioner in Yorkshire for a quarter of a century. His experience was gigantic, in medicine no less than in surgery. He was in general practice during the whole of his period of office as surgeon to the Leeds General Infirmary (1870-90), and his consulting practice was almost as large on the medical as on the surgical side. He was the greatest man I have ever known in our profession, for to his massive qualities of intellect he added a grandeur of character unsurpassed. Though I knew him as well as any man, I never heard a heartless word or an ungenerous estimate pass his lips. But his silence could be full of awe; and when need arose he could denounce with devastating emphasis the acts or the qualities he believed to be evil. In his examination of a case he left nothing undetermined; he was methodical, comprehensive, and deliberate. That completed, he would discuss the diagnosis, or the treatment, with the utmost circumspection; nothing in the history or in the signs had escaped him; there was never a need to look again or to feel again. Every detail was remembered and its value measured. All men considered his judgement as the final one, and popular sentiment was not alone in feeling that if Mr. Jessop had not seen a case there still remained something to be done, and

a gleam of hope was still to be found even in the gloomiest outlook. He was indisputably the best, and the safest, operator on the staff. He had developed a technique which for those days was good. His hands were strong, gentle, yet compelling. He was imperturbable. No crisis—and there were such events in his time—ever disturbed his perfect tranquillity of speech or action. He never knew the name of any assistant or house-surgeon, and addressed everyone as "Mister." This became in time his own title, and as "Mister" he was known to many generations of students and residents, who regarded him with the deepest admiration and respect, and with, perhaps, a shade of fear. He, too, was a pioneer. He recorded the first case of successful extirpation of a growth in the kidney in this country, and the first case in which an operation upon a patient with advanced extrauterine gestation saved both mother and child. He was vice-president of the Royal College of Surgeons in 1901.

The greater number of the Leeds surgeons have been home-grown products, trained at the Leeds Infirmary; a few have been imported. The greatest of the foreigners was A. F. McGill, a nephew and godson of Sir William Fergusson. He had the widest vision and the clearest intellect of any member of the staff, and his dexterity, on his best days, was unsurpassed. He had his bad days, too, and it did not take long to discover that these were warnings that the diabetes, from which, with other members of his family, he had long suffered, was beginning to murmur the most ominous threats. He will, of course, be for ever remembered as the pioneer in prostatectomy. His first operation was performed in March, 1887. At that time I was his dresser, and by a happy chance was acting as his house-surgeon. A patient with a tumour in the bladder came to his wards, and an operation revealed a projecting mass near the internal meatus of the urethra, which was removed. In those days the house-surgeon cut all sections for his chief. When I examined this tumour I found it was prostatic, and, with a little glee at the chance to score off my dear master, I met him in the entrance hall the next morning. He asked after the patient, and I said he was doing well, and that the "tumour" he had removed was a part of the prostate. "Oh, was it," said McGill at once, "then why don't we always take the prostate out?" At the British Medical Association meeting in Leeds in 1889 he showed a number of patients, old men seated in a row, each holding his prostate in the jar which still contains it to-day. The question of priority in the performance of prostatectomy has raged fiercely, but no serious controversy is possible. McGill's specimens are as he left them, and they show that from nibbling operations he passed to enucleations, until, at the last, the whole prostate, with a part of the prostatic urethra, was removed exactly as it is done to-day. McGill was a pioneer, too, in gall-bladder surgery, but a most untimely and deeply lamented death prevented his marching with Mayo-Robson along this road which has led to such new and fertile fields.

The surgeon who came at the most pregnant moment and made the fullest use of his opportunities was Mayo-Robson. From McGill, whose dresser I was, and from Mayo-Robson, whose house-surgeon I became in October, 1887, I learned the rudiments of all I have ever known of surgery. Mayo-Robson had been a great prize-winner at the medical school, and he regarded me, I think, with favour from the first because in this direction I had shown a greed hardly inferior to his own. He was never a resident officer, and on joining the staff, he has since told me, he was "very raw." But he had an unquenchable zeal for work, a most acquisitive and retentive mind, and a skill of hand and of eye that made him then a marksman of almost the very first rank and a fisherman of the greatest repute. Coming into surgery at the birth of a new time, Mayo-Robson used the methods of Lister to explore regions of disease which had never yet suffered deliberate assault during the life of a patient. He carried a stage further the work of Spencer Wells and of Lawson Tait on pelvic diseases, and, becoming daily more practised in his art, began to explore the upper regions of the abdomen also. After Lawson Tait had inaugurated the surgery of the gall bladder, the greatest advances made in our knowledge of cholelithiasis and of its treatment were his. His work on diseases of the stomach surpassed that of any other man of his time. He added greatly to our knowledge of diseases of the pancreas. I thought then, and I am certain now, that in his day there was no surgeon in the world safer than he. His mind was original; he was quick-witted to an amazing degree, seeing in new discoveries an immediate application to some problem or another in surgery; he was as dexterous, as gentle, as accurate in every movement as any man I ever saw; he had an earnest and unwearied desire to help his patients to the utmost of his powers. Perhaps he was not altogether free from the faults of the pioneer and enthusiast. He was a little inclined to make little of his mistakes, or to think that another's share in the work had perhaps been a shade less conscientious than his own. The generous word of encouragement, the word we are all of us the better for hearing on due occasion, did not often pass his lips. During the war he gave noble service to his country: his industry, his devotion, and his great surgical experience were most bountifully given to our troops. The high reputation the Leeds School of Medicine already enjoyed was beyond question greatly advanced by the writings and the work of Mayo-Robson.

Of Edward Ward, an artist among surgeons, and an inspiring teacher, I have so recently written that I need add nothing to-day. He devised an operation for the excision of the larynx, which he practised with a degree of technical skill, and an exquisite perfection of design, that were unsurpassed; and his name is still attached to the single stitch by which the operation of colotomy may be completed.

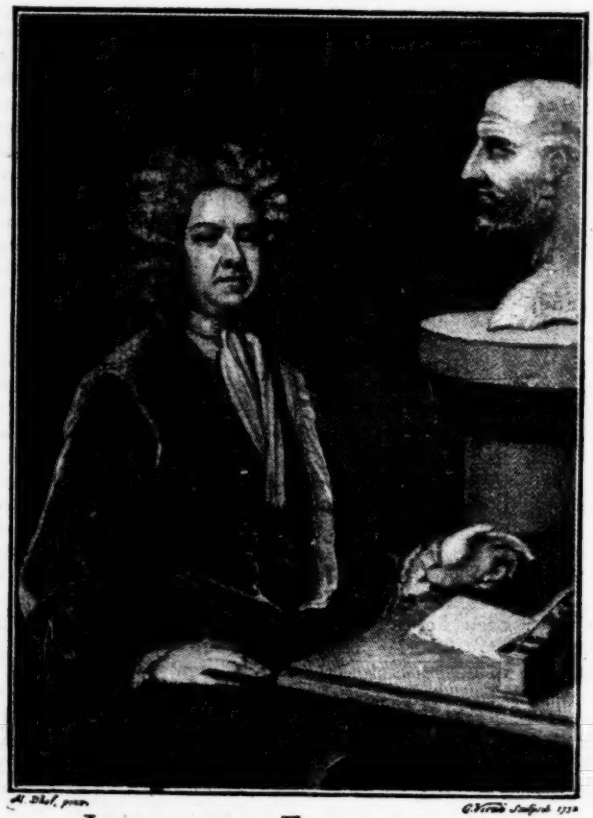
War is a great testing time, of nations as of men. The tale of the doings of the men of Leeds during the world war has been fully told by W. H. Scott. All the members of our staff, of course, gave loyal and continuous service. Harry Littlewood (1861-1921), as administrator of our 2nd Northern General Hospital, proved himself as competent in the direction of the manifold affairs of that office as he had been skilful and sagacious as a surgeon. Of him, too, I recently wrote in the *Yorkshire Post* at the time of his death, which, as all of us realize, was in no small degree hastened by the intensity of his unremitting devotion to duty during the busy days of war.

As we look back, then, upon the first century and a half of the work of our forebears in Leeds we may in all modesty claim that their achievements are not inferior to those of the staff of any hospital in this country. In range of vision, in the subtle invention of new methods, in the skilful moulding of new practice, they have played a worthy and, at times, a very distinguished part. It has not been our fortune to own a Lister, a Hunter, or a Victor Horsley; the highest pinnacles of all have as yet been denied to us. But among those who cluster round the greatest heights the figures of more than one of our surgeons may be clearly discerned. We of the present time have come into a great inheritance which is not ours to squander or to dissipate. Earnestly must we strive to add something—something of our own, however humble. Perilous as it may be to say so, I believe that the paths which we now follow have been explored nearly to the end. The methods of surgery can scarcely be made more safe than they are to-day. Operations of the utmost severity are performed by the great masters with an absence of risk that leaves little hope of betterment. The chief risk in surgery to-day comes from delay. But though as a measure of therapy the surgical art has now approached perfection, as the handmaid of medicine, as an instrument of scientific research it has still very much to do. Immense though its achievements in this respect have been, we need in these days a broader method. Experimental research, in spite of its occasional fallacies, must march along with us, and the mass of evidence afforded by our surgical work must undergo a wider and closer scrutiny. Clinical and experimental research we needs must have, both extensive and intensive. These are functions of a university, and to our own university we have but now made our plea. When our centenary is celebrated I pray that the speaker who will then take this place of mine may be able truthfully to claim that, great as were the achievements in the early days of our School of Medicine, they have been far surpassed by the labours of our successors.

Nova et Vetera.

JOHN FREIND.

No English physician is securer of immortality than John Freind, and yet to those critics who, like the old Science and Art Department, pay by results, his claims to remembrance may seem very modest. Munk did, indeed, quote an "authority" who proclaimed Freind's *Emmenologia* to be "admirable for the beauty of its style, the elegant disposition of its parts, its wonderful succinctness and perspicuity, and for the happy concurrence of learning and penetration visible through the whole." But it is not probable that a modern reader will be greatly impressed by the acumen which finds a sufficient explanation of the menopause in the increasing rigidity of the fibres of the uterus and the cicatricial occlusion of the capillaries, "as occurs in piles which have been frequently incised," and explains everything by plethora. The *History of Physick* is metal more attractive. This was a favourite of Sir Norman Moore, and we have heard him say that, while it was enough to have a single edition of most books, he was glad to have a copy of every edition of Freind's *History*. Diligent Germans long ago superseded it as a source of exact information, but nobody is likely to supersede it as a source of pleasure. When one has read this book and looked at Freind's handsome face among the portraits in Pall Mall East, it is not hard to understand why he was loved in the flesh and has left a fragrant memory.



IOHANNES FREIND M.D.
Serenissimæ Reginæ CAROLINÆ Archiatrus
Cui suas Artes sua dona Latus
Et Lyram et Vinæ Salientis Telum
Scire concessit, celeremque Medendi
Deius Usum.

We English have never had any special reverence for very learned or very scientific men; specialists, possessed of and by their subjects, are apt to be accounted bores and pedants. But an enjoying English gentleman—in Bagehot's phrase—who carried his learning lightly, who, by success in practice, proved that he could do something besides write elegant Latin, and who always "played the game," has very rarely failed to command both affection and respect.

Freind had all these qualities. Of the high spiritual faculties, the creative imagination, and brooding patience which go to make a Harvey or a Darwin, he was wholly destitute. What he had in perfection was a sort of luminous common sense; the physiology of *Emmenologia* is nothing, the description of cases and how he handled them everything. In his commentaries on the *Epidemics* of Hippocrates there is no breadth of vision; he is not curious about the general theory of epidemics, but he is perfectly alive to the danger of getting oneself into a fog. Sydenham, in a very famous passage, said:

"This, at least, on the strength of a multiplicity of accurate observations, I am convinced of; viz., that diseases of the character alluded to, and more especially continued fevers, differ from one another like north and south, and that the remedy which would cure a patient at the beginning of a year, will kill him perhaps at the close."

A striking observation this, and Freind had as much respect as any man for Sydenham; but the question for him was: Did Sydenham in fact produce any evidence for his statement which would pass the common-sense test of practice?

"If we study," says Freind, "the method of treatment which this author has adopted in curing these fevers belonging, as he says, to utterly different genera, a method in which he was conspicuously successful, we do not find the smallest indication of this diversity."

A man on this level is not perhaps going to make any great discovery, but certainly he will not come upon any gigantic mare's nest.

Freind is, in fact, a true disciple of Horace, keeping to the *via media* of common sense. A wide literary culture saves him from the crudities of the practical man who wishes to see something "on a plate," and even if his eyes are blind to the highest generalizations, he is perhaps a safer model for most of us than more philosophical men. In his *History* these qualities are conspicuous. He was not trying to produce a mere chronicle, but to discover what all the ancient writers were at, what advances they made from the point of view of practice. More learned writers (not that Freind's learning was to be despised) have not always been guided by so good a principle. An edition of this book which earned for its author Haeser's not lightly bestowed commendation, "one of the most famous writers on the history of medicine," would be a fitting celebration of the second centenary of Freind's death, which will be in 1928.

It is inevitable that the Freind type should grow scarcer in our profession. We shall never, indeed, lack great gentlemen, but wide culture in the humaner letters is no longer universally looked for; familiarity with the "literature" of ductless glands will earn more respect for the young physician than ability to read Quintilian while strap-hanging in the tube. Even the College of Physicians declines any longer to impose upon its members a test of classical erudition. This is, no doubt, inevitable. But we may still have a warm corner in our hearts for the Tory medical M.P. who began his *History* while a close prisoner in the Tower, and lived the life of a scholar and gentleman.

Indeed, it is likely to be one of the most serious difficulties of medical education in the future to conserve the type of which Freind was a fine example. The case for the eighteenth century system of liberal education was that all received a general culture which, however faulty, was wider than technical education; nowadays the demands of the technicians are so numerous that hardly any time is left for general culture. Mr. Flexner, whose opinion is, of course, entitled to the most reverent attention, has urged us to make our system still more technical, and the days of the Freinds and Lathams are numbered.

"So in entering this place, even this vast hospital, where there is many a significant, many a wonderful thing, you shall take me along with you, and I will be your guide. But it is by your own eyes, and your own minds, and (may I add) by your own hearts, that you must observe, and learn, and profit. I can only point to the objects, and have little more to say than 'see here, and see there.'"

This is an obsolete exhortation if the student is to regard the patients as cases upon whom half a dozen heads of clinical services have furnished expert reports; his time will hardly be long enough to enable him to co-ordinate the findings of the radiologist, the chemical pathologist, the applied physiologist, the ophthalmologist, and the half-dozen other specialists whose observations are placed before him in the most up-to-date of foreign clinics. Let

him study the report of the cardiologist and not bother about the promptings of his own "heart."

Another remark of Latham is not obsolete; it is this:

"But, in our day, there is little fear that students will be spoiled by the recommendation of their instructors to be content with a scanty knowledge, and trust to their sagacity for the rest. They are not likely to suffer harm by having Sydenham held up as an example for imitation: the fear is of another kind (and it is well grounded), namely, that many men of the best abilities and good education will be deterred from prosecuting physic as a profession, in consequence of the necessity indiscriminately laid upon all for impossible attainments, of which no example is or can be held forth for their imitation."

THE RURAL PRACTITIONER AND MATERNITY.

BY

MAURICE MOTTRAM, M.R.C.S., L.R.C.P.

IN a leading article in the BRITISH MEDICAL JOURNAL of November 15th, 1924, surprise was expressed that no general practitioner had taken up the cudgels in the recent conference and correspondence on puerperal sepsis. Doubtless many felt that much might be said, but perhaps thought that we were inclined to be too touchy, and that the remarks made did not bear the meaning that they seemed to do. The leading article, however, seems to confirm the impression that a very definite attack has been made on the general practitioner.

Why were these remarks allowed to pass in silence? Two reasons, at any rate, can be offered. In the first place, it is quite useless to argue when the other side is ignorant. No one would question the right of the various speakers to speak with authority on all matters gynaecological, but I think it is no exaggeration to say that most of them showed a regrettable ignorance of the conditions under which midwifery is practised by a large proportion of the profession. Until they have at least a working knowledge of the various types of practice the advice they give us must of necessity be robbed of much of its value.

There is another possible reason for our silence. Just as the eels in the story got used to being skinned, so we have become used to being criticized. Each Annual Meeting brings its crop of criticism of the general practitioner—some of it just and fair, some pitying and patronizing, and some unfair and in very bad taste. Unfortunately the last is generally copied into the lay press, and the prestige of the profession is lowered accordingly. Such articles as "How to conduct a confinement in a private house" are common, and seem to be written by those who never do it, or, at any rate, not in the country. For example, one enthusiast wants the matter treated as a major operation—the pictures down and the carpet up, the surplus furniture removed. Where to? Presumably into the street, for the husband and rest of the family are sleeping in the only other room, which is already overfull. Another writer seems to depend on a gas stove for his routine. The nearest gas stove is eight miles away. And so on *ad infinitum*. After reading a few lines of these gentlemen's advice one is driven to the conclusion that, however perfect their technique may be, it is useless to the rural practitioner.

This brings me to the root of the matter—the total lack of understanding of the work and conditions of the rural practitioner. To make the matter quite clear I will define the type of man and practice that may fairly be looked upon as rural. He works single-handed in a radius of five miles, he lives eight miles from his nearest town and hospital and five miles from his nearest medical neighbour, he dispenses all his own medicines, he would probably have from 750 to 1,000 insured persons on his list. There are, of course, the mountainous practices, where the conditions are accentuated, and the semi-rural, where they are better. I venture to say that a man running such a practice is generally a good type, and to-day he is threatened with extinction—in fact, the process is well started. I hope to show the relation such a man has to maternity work in the country, and to raise the question whether the maternal welfare will be best served by scrapping him and replacing him with something else, or by trying to improve the conditions under which he works, and so making him a still better type.

In the recent discussion the word "practitioner" was used. It is a bad word, for the work of a rural and urban practice is so different that the question of maternity work in either must be discussed separately. I have had twenty years' experience of rural conditions, and my suggestions apply *solely* to rural practices. I have no advice to offer in connexion with town practices, of which I know nothing. I would that those who know nothing of the country would be equally reticent.

Most of the points raised by the various speakers and writers are, I think, covered by the following headings, and I propose to discuss them in so far as they have a bearing on the rural practitioner and his work.

Maternal Mortality.

This, we are told, does not fall, and apparently it is the fault of the person attending the confinement. I find no suggestion as to where the incidence is most common, town or country. We are constantly told that child-bearing is a natural process. But is it? The production of young by the female is natural, but to say that child-bearing by a woman of to-day, with her curved pelvis and various diseases to complicate matters, is a normal process is untrue. In view of the splendid opportunities for trouble to arise it is surprising that things are not worse, though that, of course, should not deter us from trying to make them better. If our knowledge has increased tenfold, the difficulties to be overcome have increased a hundredfold.

Puerperal Sepsis.

I do not intend to try to define this, but there seemed to be very little agreement at the conference on the subject. All varieties of treatment seem to have their advocates. Suffice it to say that any case that runs a temperature after confinement is a source of worry to the conscientious practitioner, and has to be dealt with. It seems that the person attending is apparently to blame. Dr. Stevenson blames the doctor and absolves the midwife. This is a very serious charge, and appears to be based solely on his interpretation of certain figures. But which, in point of fact, are the cases which run a temperature in the country? Ask any experienced rural practitioner, and he will probably say that it is not the difficult forceps case, which has had no end of handling (with intervals while the operator has to stop to give more anaesthetic), which shows a rise of temperature, but more often the case that has, perhaps, never been examined during labour. In a case of this sort the chances of the doctor being directly responsible are greatly reduced. The fact that just outside the window pigs are wandering about knee-deep in filth may have something to do with the matter, and this is a job for the Ministry of Health.

Notification of Sepsis.

I am relieved to find that some speakers seem to be losing their faith in this fetish. To some minds a notification to an official is all that is needed to cure every ill. It may be some use to notify an infectious disease in a town; I believe it is. But, speaking of the district in which I live, I have no hesitation in saying that up to a year ago it was useless. There being no hospital to which a case could be removed, the medical officer of health was powerless. It is true that in present circumstances it is possible to get a case into the town infectious hospital *sometimes*. But I remember notifying a case of diphtheria in a two-roomed cottage with five inmates. Medical officer of health, district nurses, health visitors—all were useless. When the child was moribund I felt that it might be justifiable to try my hand at a tracheotomy. A neighbour was found who "durst" hold a candle for me. The child revived and lived two days, succumbing when the membrane spread below the tube. He was nursed by his father, who had once looked after a tubed horse. And yet, with this case in my mind, I am asked to enthuse over the advantages of notifying puerperal sepsis! A tin of disinfectant from the sanitary inspector, and a visit in due course from the medical officer of health, who lives thirty miles away, is all that can be expected here.

Professor McIlroy suggests that notification is apt to get the doctor into trouble. In this instance I agree with her. The notification that something is wrong, and the coming of an official who may or may not be tactful, is quite enough to set the husband thinking that the doctor is to blame. What more natural, in the present state of affairs, than that he should bring an action? Recent cases have shown that the fact that the doctor is, from the medical point of view, not to blame has very little bearing on the matter. The judge will make his usual platitudes and the jury find against the doctor.

I would suggest that before we are asked to make further notifications those responsible should set their house in order, and see to it that there is a chance that the notification will bear some useful result. As I said before, I am concerned with the country districts only.

Specialists.

Regret was expressed recently that a midwife had done her duty in calling in a registered practitioner, the suggestion

apparently being that she should send for a specialist or, though it seems incredible, the medical officer of health himself. The fatuousness of such a suggestion can only be appreciated by those who live in the country. In this district the medical officer of health lives nearly thirty miles away and the nearest specialist gynaecologist forty. Dr. Fitzgibbon appreciates the difficulty, and estimates that over 700 specialists would be wanted. I admit I have not worked it out, but should think that this number might go some way towards supplying the larger towns. To give a really efficient service in the country areas I suggest that nearer 7,000 specialists would be wanted. It would, of course, be possible to appoint a certain number of men as "specialists." Sillier things have obtained official sanction before now. But I fail to see that the parturient woman will be one iota better off, and it will have appalling results in other directions. If there is one man fitted to deal with an emergency (other than the obstetrician, the genuine ones), surely it is the rural practitioner. A bad case in a cottage a mile off the road, two candles for light, a limited supply of hot water and utensils, an ignorant woman to assist, and no medical help nearer than five miles. And yet these cases live and do well. Could our critics do better in such circumstances, or as well?

Hospitals.

It has been suggested that all abnormal cases should be sent to hospital. No one is such a fool as to want to tackle eclampsia or a placenta praevia in a cottage. But, as a rule, by the time the doctor sees the case the time for removal is gone.

Midwives.

Professor McIlroy refers to these as a "highly trained body of specialists." On what does she base this statement? I should describe them in the country as a hard-working class, but to refer to them in bulk as highly trained specialists is absurd. How did they become so? Was their training superior to that of the average doctor? Is their knowledge of anatomy and physiology greater, or are they by nature our intellectual superiors? It is such random statements as this which make the rural practitioner feel that argument is useless. Doubtless Professor McIlroy's experience of midwives is vastly greater than mine, but I have yet to meet a single one of these highly trained specialists. On the other hand, I have met several who have been positively dangerous. She suggests, further, that the midwives are cutting out the doctors, and appears to derive some satisfaction from this. But is it a matter for congratulation? As a matter of fact it is true, but it is not due to the superiority of the midwives; the reason is largely financial.

Finance.

This is a subject that is seldom mentioned, partly because those who speak most at conferences, etc., appear to be enjoying fixed salaries. The last clause in the leading article that I have already referred to is typical: "Provided discussion is carried on from the wide viewpoint of the public good and not from the narrow one of professional interest," etc. Surely the public good is intimately combined with the best interests of the profession. The utter ignoring of the financial side of the doctor's business, so far from having done good, is going to do the public in the rural areas an incalculable amount of harm. It is an unfortunate fact that practically every innovation which is alleged to be for the public good leads to a diminution of the doctor's income. The worst of us probably rarely spends a day without giving something away, frequently of necessity rather than as a virtue. But it is one thing to give individually among the people that we live with and know, and quite another matter to be called upon to give our services generally and at the demand of public bodies. If we received preferential treatment in the matter of taxation there might be some excuse for it, but no profession is treated more shabbily than ours. All our small privileges have been swept away—for example, reduction on car tax and petrol.

It is absolutely certain that when a district nurse is introduced into a practice the doctor can say good-bye to a slice of his income. The habit arises of calling in the nurse to decide if the doctor is wanted. If he is not wanted the doctor loses the fee he should have had. Often the nurse tries her hand at treatment for a few days. This, when the case is of an infectious nature, may have disastrous results, and I am quite sure that this practising by unqualified practitioners—for it is nothing else—is not for the public good. In the case of the very poor there may be some excuse, but the habit spreads to those who can and should pay fees. The well-to-do farmer's wife has the nurse to attend to the boil on her leg and the child's cut hand. There is an idea that the doctor does not want to be "bothered" with trivialities. This may be true, and I blame the members of the profession to a certain extent for this idea. Looked at broadly, the doctor has to do a certain amount of work to make a certain income. The simpler the case the greater the profit. The acute abdomen and the difficult confinement are not profitable: the fee is insignificant compared with the amount of work and worry involved.

But it is when we come to the maternity work of the midwives that we find the most crying scandal in the matter of fees. Let us assume fifty confinements per annum in a country practice such as I have in mind. In this district the minimum fee is £2. Among the working classes it is also nearly the maximum, for however bad the case it is no use asking a man for a fee that he cannot possibly pay. The easy cases must pay for the difficult. Of the fifty cases about thirty will be normal—I quote Dr. Fitzgibbon. The doctor gets £60, and it is admittedly fairly easily earned. Let us assume ten cases will be abnormal, and a few of these will be really bad, causing no end of work, and, what is much worse, anxiety. In a poor district it is probable that he will not get more than an average of £3 per case. He has earned every penny of this £30, and it is probable that a little has had to go in anaesthetists and help. The remaining ten cases would probably be better-class cases which would not have the midwife. Thus he gets £90 for forty cases, and, taking the rough with the smooth, it is not too bad. What happens when a nurse is imported? She manages the thirty normal cases without help, and the doctor is £60 out of pocket. And this brings us to the most scandalous part of the business. The nurse, remember, is "cutting the doctor out." Professor McIlroy has said it. She is his professional opponent. She meets with one of the abnormal cases. She is in a difficulty, and this difficulty may have been increased by her failure to diagnose the abnormality early. The general practitioner—for whom, apparently, Professor McIlroy has no use—is sent for. The matter is urgent—the well-being, perhaps the life, of a woman is involved. Human nature prompts the doctor to tell the nurse to get herself out of the difficulty. Ordinary humanity compels him to go, and not only to go, but to abandon whatever else he may be doing. A call of this sort cannot be put off. Now, one would have thought that even a soulless organization like a county council would have had a sufficient sense of honour to pay the man that they are ousting a really good fee when he helps one of their agents in her extremity. A certain speaker (I am not positive of her name, so will not mention it) stated recently that in the circumstances "a fee is paid." She did well not to mention the amount; perhaps a sense of shame stopped her. The fact is as follows. A doctor may be called upon to turn out at any hour of the day or night to help an organization which is admittedly opposed to him, to tackle single-handed any and every sort of obstetrical catastrophe in a patient living at a distance up to two miles from his house (a small mileage fee is paid for longer distances), and to put in all necessary attendance for ten days, and the fee is £2—the same fee that he can get for a normal "B.B.A." Surely, seething the kid in its mother's milk is by comparison a humane and decent proceeding. I feel that I may end my indictment and defence on this note. If those who have read as far look upon this as a fair and just deal, then I have failed indeed.

Conclusion.

The matter seems to boil down to this. The maternity service is unsatisfactory, and it is suggested that the general practitioner is to blame. There are three ways in which the matter may be tackled. The general practitioner may be abolished or superseded by a superior service—it is the same thing. He can be left to continue as he is, or his work and general conditions may be improved.

Do those who criticize us really wish to do away with the rural practitioner? Can they offer anything that will take his place?—I mean in actual fact, not in theory. And have they considered what very far-reaching results such a step must have, and whether it will be for the public good, of which we hear so much? I think most of us would be willing to withdraw to fresh fields of activity if a better service can be provided. But can it? The midwives will have to increase vastly in numbers and skill before they can be trusted with all and every confinement. And what of the people of limited means? The *nouveaux riches*, who now inhabit most of the large houses, can easily get their doctor from the nearest town; but there is an enormous majority of people living in the country who cannot afford to pay a doctor to come eight miles to see them, and even if they manage to pay him they are not in a position to get medicines, etc., from a chemist who lives equally far away. I am perfectly sure that if nothing is done to encourage the better class of men to practise in the country, the rural practices, where they still exist, will within twenty

years be in the hands of the very lazy and the very incompetent. I cannot think that this will tend to reduce the maternal death rate in the country.

The Cure.

Destructive criticism is useless in itself. I honestly believe there is a means of putting the country practices on a sound footing, a means that will benefit the medical profession—I am quite unashamed of putting ourselves first—the general public in the country, and incidentally in the towns as well. Salvation lies in the erection of numerous cottage hospitals. Every year large numbers of potential good surgeons are turned out from the medical schools. A liking for a country life leads some of these into the country. They get the life they want, but so far as professional advancement goes they might as well have tied the proverbial millstone round their necks. At first they find little scope for surgery. If they undertake it they find that the obstacles to success are innumerable—the best surgeon in the world is useless unless the case can be nursed. Gradually the inclination wears off, and the capacity soon follows. A vicious circle is set up—the less a man attempts the less he feels inclined to attempt, and he gets into the habit of passing his cases on to the nearest hospital; whereas, given the opportunity, he could perfectly well have treated them himself. Now, with a cottage hospital to about every three practices things would be different. Neighbouring practitioners should or would work together, more partnerships would probably be formed, and team work, with all its advantages, undertaken. As at present, surgeons from larger hospitals would probably be willing to do major operations, but the necessity for such help, now generously given, would diminish with time; there would soon be plenty of capable surgeons in the country districts if opportunity for surgery was offered. The present congestion of the existing hospitals would be relieved. The existing organizations of district nurses and midwives might be incorporated with the hospital nursing staffs, and maternity wards could be arranged for those cases whose houses are utterly unsuitable. Though I love the country, I should strongly advise any young man straight from hospital to give it a wide berth. But with a cottage hospital a country practice would be a very attractive proposition.

There is one bar to this scheme. It will be said that the country cannot afford it. This is untrue. Unlike an individual, a nation can afford anything it wishes for. We had to afford a war, and a very small part of the money spent on this—about three millions a day, I believe—would have gone far to providing a considerable proportion of the necessary hospitals. We can afford vast sums for doles, old age pensions, and education. But the public health makes little appeal to the general public, and as a vote-catching stunt is useless.

Finally, I beg those who criticize the general practitioner as a whole to try to learn something of his conditions, and to consider what the state of the country is likely to be in the future without him or with something worse.

PULMONARY TUBERCULOSIS TREATED BY SPAHLINGER'S SERUM.

WE have been asked to publish the following reports, by two medical observers, of a case of pulmonary tuberculosis treated by Spahlinger's serum at Geneva.

Dr. TH. STEPHANI (Montana) writes:

The following case—Mr. R. G., aged 29, an old patient of mine who has again recently come under my observation—is so remarkable that its details might interest your readers. He arrived at Geneva at the end of July in a most critical condition, with advanced cachexia; an evening temperature ranging between 102° and 104° for eight months previously; pulse 110 to 136; extremely weak; severe coughing—5 to 6 oz. of purulent sputum, containing tubercle bacilli in large numbers; cyanosis and distressing dyspnoea necessitating the administration of large doses of oxygen for fifteen minutes hourly; profuse sweating; considerable emaciation; anorexia; prostration; breath foul. Moist râles were present over the whole of the left lung, which was completely involved. There was widely scattered disease in the right lung with a cavity in process of formation at the apex. It appeared as if the end would be only a question of a few days. It was decided that Spahlinger's serum should be given daily in as large quantities as possible. This treatment was started on August 1st, 1924, by injections, by rectum, and by mouth, together with oxygen, digitalin, camphor oil, and cryogenin. The temperature, pulse, and appetite improved rapidly, and the progress of the reduction of the toxaemia was most remarkable. Ten weeks later the disease seemed to be completely arrested. The temperature and pulse were normal; the cough and sputum were almost absent; tubercle bacilli were occasionally present in expectoration, but only in small numbers; he had gained over 1 st. 5 lb. in weight; the lowest weight had not been ascertained. The patient is now allowed to take mild exercise. Chest examination indicates a complete clearing up of the physical signs, the improvement being confirmed by radioscopy.

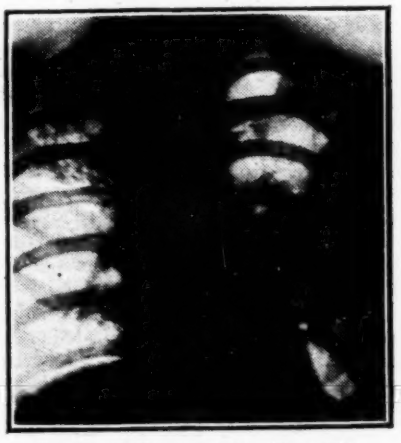


FIG. 1.—Radiogram taken May, 1924.

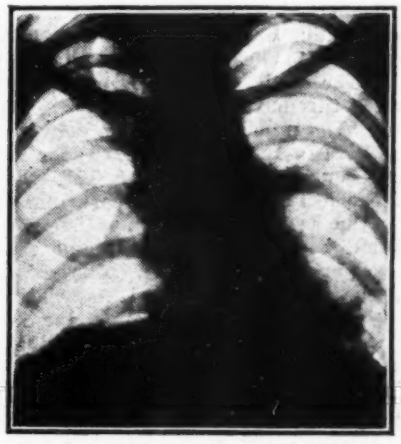


FIG. 2.—Radiogram taken September, 1924.

Of the two radiograms reproduced the first was taken at Mentone in May, 1924. The second, taken recently, shows a striking disappearance of the shadows in the former. Unfortunately the patient's condition was such that no *x*-ray photograph was possible on his arrival at Geneva.

The large doses of partial serum have rapidly arrested an extensive and severe evolution of the disease where there was practically no hope of a recovery.

I have treated this case in conjunction with Dr. E. Trechsel and Dr. A. Mermod of Geneva, and send you enclosed a report by Dr. B. Hudson of Montana, with whom I saw the patient in consultation.

Dr. BERNARD HUDSON (Montana) writes:

I was asked to see, in consultation, a young man, aged 29, suffering from pulmonary tuberculosis, who was on his way from the South of France to Montana. He unfortunately became so ill in Geneva that he was unable to move. I saw him with his doctor on August 1st, 1924, and we were both in agreement that the condition of this patient was well-nigh hopeless. The temperature was running up from 102° to 104° every night, and had been doing so, without intermission, for many months; there were signs of extensive softening in both lungs; he was thin, emaciated, hectic-looking, and coughing up a large amount of offensive purulent sputum. To put it shortly, the patient had all the signs of active and severe pulmonary tuberculosis. Taking into consideration his condition, and the steady downhill course which the disease had been taking during the past year, I considered the case to be quite hopeless, and informed his friends accordingly. The patient himself was very anxious to try the Spahlinger serum; I discouraged this, as I did not think it would have the slightest effect in such a case. However, it was tried, with very beneficial results. I saw the patient again ten weeks later. The signs in the chest had cleared up, the temperature had become normal; he is gaining weight, the sputum is decreasing—in other words, the disease is becoming inactive. I have been asked to report this case, and am pleased to do so, for there can be no doubt that the recovery in this instance is a very striking one.

Canada.

[FROM OUR CORRESPONDENT.]

MEDICAL EXTENSION LECTURES.

IT is not easy, perhaps, for those in the Old Country to realize the conditions of medical practice in Canada and the difficulties members of the profession encounter in their attempt to keep abreast of the times. Many of the doctors in country districts or even in small villages suffer from an isolation with which, I think, there is nothing comparable in the British Isles. In some of these districts it is extremely hard for the doctor to absent himself, especially from his obstetrical patients, to journey to a large centre and "brush up" by attending lectures and clinics and by watching hospital practice. It is true that there are, for instance in Ontario, county medical societies, and, to attend the meetings, the practitioners, in a very praiseworthy way, travel scores of miles by motor or sleigh, sometimes over roads which are only "roads" in name. Several years ago the Committee on Education of the Ontario Medical Association devised a scheme of post-graduate education for the medical profession. To Dr. J. H. Mullin of Hamilton, a former president of the association, belongs a great deal of the credit for developing this "medical extension" work. The medical faculties of Queen's University, Kingston, of Toronto University, and of Western University, London, have lent great aid by allowing members of their staffs to go out and give lectures. For two successive years the Ontario Division of the Canadian Red Cross Society made a grant of 5,000 dollars to the Ontario Medical Association for this work. On the invitation from a county medical society or from a group of practitioners a lecturer is sent out, and his paper forms the major portion of the programme of the meeting. A booklet of the association gives the titles of the lectures which may be asked for, and these are arranged under eleven heads, such as "internal medicine," "pediatrics," "oto-laryngology," "pathology," "physiology and biochemistry," "radiology," "miscellaneous," etc. There is, for instance, a choice of eighty-four different subjects included in the "internal medicine" list. A series of papers on the same branch of medicine can be arranged. It is not to be supposed that the medical societies rely only on this post-graduate lecture at their meetings; they are encouraged to have papers from their own members as well. The topic of the lecture is first asked for, and only after this has been done is the name of the lecturer sent out. The number of lectures delivered in the year 1921-22 was 241; in 1922-23 it was 249; for the period June 1st to October 31st, 1923, it was 121. The travelling expenses of the lecturer *plus* an honorarium of 10 dollars are paid by the association. It is satisfactory to note that the scheme has been successful, and that members of the profession are pleased with it. At the San Francisco meeting of the American Medical Association Dr. T. C. Routley, secretary of the Ontario and Canadian Medical Associations, outlined the plan of post-graduate education, and now in the United States a similar one is being adopted, and with, I think, the aid of the Rockefeller Foundation a million dollars has been set aside for the purpose.

PATHOLOGICAL INSTITUTE OF MCGILL UNIVERSITY.

The new pathological institute of McGill University, which owes its being to the generosity of the alumni of the university, the citizens of Montreal, the Royal Victoria Hospital, and the Rockefeller Foundation, was opened on October 6th (Founder's Day) by the Lieutenant-Governor of the Province of Quebec, the Hon. N. Perodeau. There was a distinguished gathering of medical men and representatives of universities in many parts of the world. The Graham Professor of Pathology in the University of London, A. E. Boycott, F.R.S., delivered the chief address of the day. Professor Boycott said that pathology had proved itself able to stand alone as a science, and he welcomed the opportunity afforded at some universities in England and elsewhere to non-medical students, seeking a degree of doctor of science or doctor of philosophy, of taking pathology as one of their subjects. In his opinion too much time was spent by pathologists in doing routine work, such as the Wassermann test, which should more properly be performed in the clinical laboratories. He made a plea for the study of plant as well as animal pathology, for in both the pathologist studied problems of life. Immediate practical results should not always be taken as criteria of good pathological work, but knowledge of obscure phenomena should be sought for its own sake; in this connexion he cited the work of the young French-Canadian, d'Herelle.

The building stands close to the Royal Victoria Hospital and Medical School, and is connected with the former by an underground passage. It provides more than ample lecture and laboratory room for the present needs of the departments of pathology, bacteriology, toxicology, and medical jurisprudence. Some of the important features are the large *post-mortem* amphitheatre, where those of the students not actually helping at the autopsy may watch it being done, a large students' laboratory for microscopical pathology, arranged to secure good window light by placing long tables on a series of wide steps in the floor, and an excellent refrigerating room for keeping vaccines, serums, and cultures. Dr. Horst Oertel, Strathcona Professor of Pathology, is director of the institute.

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

The twenty-ninth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, with Dr. Walter B. Lancaster of Boston as president, was held in Montreal on September 16th to 18th, when 400 members were present. On the day before the meeting about forty members competed in a golf tournament held at the Royal Montreal Golf Club. The official guest of the academy, Colonel Henry Kirkpatrick, I.M.S.(ret.), of London read a paper on some aspects of primary cataract, and several members took part in a symposium on papilloedema. Other papers dealt with the toxic effects of local anaesthesia, pulmonary complications (with death) after tonsillectomy, and the bronchoscopic treatment of tracheo-bronchial asthma. A short instructional course was given at McGill University for the members. Among the subjects dealt with were the fundamentals and modern treatment of diabetes mellitus, and the part played by the disease in ophthalmology and oto-laryngology.

VISIT OF THE AMERICAN COLLEGE OF SURGEONS.

A successful meeting of the Mid-West Section of the American College of Surgeons was held in the Fort Garry Hotel, Winnipeg, on September 2nd and 3rd. Operations were performed each morning from 8 till 10 o'clock at the General, Misericordia, and St. Boniface Hospitals. There were many visiting members from the United States. Some of the subjects discussed were the treatment of chronic empyema, gastro-duodenal ulcer, the diagnosis and treatment of diaphragmatic hernia, the differential diagnosis and treatment of non-tuberculous pulmonary suppuration, and the principles governing the treatment of surgical conditions of the large bowel.

England and Wales.

THE LEEDS GENERAL INFIRMARY.

MR. A. L. WHITEHEAD, having completed his period of service on the full staff, is now added to the number of the consulting staff with the right to use six beds. The conditions of appointment of the physicians and surgeons are that they serve on the full staff for twenty years or until they attain the age of 60, when they automatically go upon the consulting staff with the above noted valuable privilege. The term of office as a member of the full staff is, of course, preceded by a varying period on the assistant staff. In the case, however, of those who, like Mr. Whitehead, are attached to special departments, the total period of office is twenty-five years, there being no assistant staff attached to the

special departments. It is only those who have been accustomed to make their regular rounds for many years with a class of students who can understand the wrench which is felt when quite suddenly one day it is grasped that their hospital career is at an end, and we venture to think that the plan adopted at Leeds is worthy of imitation elsewhere. The vacancy created by Mr. Whitehead's promotion has been filled by the appointment as ophthalmic surgeon of Mr. S. D. Lodge, F.R.C.S.

Regulation of Slaughterhouses.

The Minister of Health has made regulations, entitled the Public Health (Meat) Regulations, 1924 (Statutory Rules and Orders, 1924, No. 1432), as to the slaughter of animals for human consumption, the marking of inspected meat, and the conditions of storage, handling, transport, etc., of meat. The Order has been placed on sale by the Stationery Office, price 2d. It is accompanied by a circular to port and other sanitary authorities in England and Wales (No. 547, December 29th, 1924. Price 1d.). The circular has three sections, the first dealing with slaughtering, the second with meat marking, and the third with cleanliness. To admit of the necessary arrangements being made by the local authorities and the trade, the regulations will not come into operation until April 1st next, but applications for the authorization of meat marking will be made in anticipation of the date of the coming into force of the regulations. The Minister has also made an Order (No. 1431), entitled the Rural District Councils (Slaughterhouses) Order, 1924, conferring on all rural district councils the powers of an urban authority in regard to slaughterhouses. This Order also is accompanied by an explanatory circular (No. 552). The price of the Order and that of the accompanying circular is 1d. in each case. Copies of all these documents can be purchased through any bookseller, or directly from H.M. Stationery Office, Adastral House, Kingsway, W.C.2; 28, Abingdon Street, Westminster; York Street, Manchester; and 1, St. Andrew's Crescent, Cardiff. The cost of postage does not seem to be stated.

Medical Examination of London School Children.

The London County Council proposes to institute, as from April 1st next, a systematic medical examination of elementary school children immediately before they leave school; the purpose of the examination is to advise on questions relating to employment and to co-operate with factory surgeons. Under the present provisions children are medically inspected on entry into school and at about the eighth and twelfth years. It has long been realized that an examination on leaving school would serve a useful purpose, and indeed the arrangements for such examination in certain cases have been in existence for some time past. The routine examination will affect 60,000 children a year, and the additional expenditure will be £5,600 for the first year, and thereafter £6,000 annually. The question will be reconsidered if and when the proposed Factories Bill becomes law and contains provision for the medical examination of young persons employed in factories. The Board of Education has given its approval. The Council is also proposing to make additional provision for remedial exercises.

Central Heating in London County Council Houses.

The Housing Committee of the London County Council has had referred to it the question whether, in view of the recommendations of the Departmental Committee on Smoke and Noxious Vapour Abatement, it would be practicable in the Council's future building schemes to provide smokeless arrangements for warming rooms, supplying hot water, and cooking. The possibility of adopting a system of central heating for the Council's dwellings has been considered, but the cost of providing the necessary installation, in view of the existing restrictions under the London Building Acts on the height of buildings, is held to be prohibitive, as it would involve an addition of between two and three shillings a week to the rents of the tenements. If the present restrictions were removed and it was practicable to provide dwellings of fifteen or sixteen stories high, the question would assume a different aspect. It is thought, however, that the adoption of a system of hot-water supply for domestic purposes, with or without a radiator in the living room, should be further explored, and in one of the next blocks of dwellings a central heating system is to be installed for this limited purpose as an experiment.

Central Midwives Board.

The Central Midwives Board met on December 18th, 1924, when the Chairman, Sir Francis Champneys, presided. Information had been sent to the Board that three cases of the use of nitric acid instead of silver nitrate had occurred on the part of midwives residing at a training institution. The Board considered that the authorities of the institution should be severely censured. Lady Mabelle Egerton was appointed delegate to the Conference of the Royal Sanitary Institute at Edinburgh next July. In reply to a letter from the National Poor Law Officers' Association, the Board decided that no satisfactory intern training can be secured by an institution which does not have at least fifty cases a year. The Board recorded its deep sympathy with the family of the late Dr. J. B. Hellier and its appreciation of the valuable services rendered by him as presiding examiner at the Leeds Centre. A penal session also was held.

Scotland.

Jubilee of the Western Infirmary, Glasgow.

The Western Infirmary, Glasgow, opened its doors for the reception of patients in November, 1875. At the Christmas meeting the chairman of the board of managers, Colonel J. A. Roxburgh, said that during that fifty years many changes had taken place, all in the direction of increasing the accommodation and usefulness of the hospital. In 1875 the number of in-patients was 1,253; last year it was 9,412. There were eight wards in the original building—four medical and four surgical; to-day there were thirty-two wards. The medical and surgical staff when the infirmary was opened numbered 13; now it numbered 61. Even more important was the fact that the efficiency of equipment for the diagnosis and treatment of disease had made steady progress, and numerous departments had been added to utilize all the modern discoveries both in medicine and surgery. The hospital had been established to serve as the clinical school for the University on its then new site at Gilmorehill, and throughout its history had maintained close connexion with the University. At one time four of the professors had beds in its wards; two of the chairs had been transferred to the Royal Infirmary, but the regius professors of medicine and of surgery still conducted their clinical teaching in the Western Infirmary. The small room in which Dr. Coats began the work of the research department in 1875 had been replaced by the splendid buildings of the pathological institute and the clinical laboratory. The Infirmary was one of the earliest hospitals to start an *x*-ray department, and one of the latest additions had been a massage and electrical department, where patients were treated and women trained for the recognized certificate. Owing to the receipt of numerous legacies, several of them of large amounts, the financial position of the Infirmary was unusually satisfactory. The ordinary income for the year was £67,000, but this left a deficiency of £14,000, about the same as in 1923. The extraordinary income, chiefly from legacies but including £3,350 received from the Voluntary Hospitals Commission, was £94,000. Advantage would be taken of this exceptional state of affairs to proceed with much needed repairs to the structure and equipment of the hospital, at a cost of about £20,000. After providing for the deficiency in the ordinary income it was hoped to carry to capital reserve something like £50,000. The board of managers was anxious to carry out as early as possible the arrangements with the University as to the Gavin P. Tennant chair of ophthalmology, and fulfil its part of the bargain by instituting the department his trustees some years ago had given a sum of money to construct. Unfortunately it was not possible to proceed; the cost of building

had fallen to some extent, but the Rent Restriction Act still precluded the board from getting possession of the intended site. It was hoped as soon as possible to establish a biochemical department, which would involve an expenditure of something like £20,000; towards this about £5,000 had already been received.

EDINBURGH ROYAL INFIRMARY RESIGNATION AND APPOINTMENTS.

At a meeting of the board of managers of the Edinburgh Royal Infirmary on December 22nd, 1924, Lord Provost Sir William Sleigh in the chair, the retirement of Mr. Alexander Miles, M.D., F.R.C.S.Ed., from the position of senior surgeon to the Royal Infirmary was announced as taking place, in accordance with the regulations of the institution as to tenure of office, on December 31st. The chairman stated that Mr. Miles had had a continuous connexion with the institution since the year 1889, when he was appointed house-surgeon to Mr. A. G. Miller; ten years later he was appointed assistant surgeon; and twelve years later (January 1st, 1910) he became surgeon. On the motion of Dr. George Mackay, the board minuted its high appreciation of Mr. Miles's service and asked him to allow his name to be added to the roll of consultant surgeons to the institution. Mr. Walter Mercer, M.B., F.R.C.S.Ed., and Mr. William Alexander Cochrane, M.B., F.R.C.S.Ed., were appointed assistant surgeons to the Infirmary out of seven candidates for two vacant posts. It was reported that the receipts for the past two weeks had amounted to over £21,956, which included a donation from the Edinburgh Education Authority in respect of treatment of school children suffering from ringworm, amounting to £300, and a payment of £20,000 on account of a legacy by Mr. James Aitken, Darroch, Falkirk.

SANATORIUM ACCOMMODATION IN SOUTH-WEST SCOTLAND.

At a meeting of the Dumfries County Council on December 17th, 1924, Sir William Younger asked for the sympathy of members of the council towards any scheme that might be brought forward to extend the accommodation of the Southern Counties' Sanatorium at Lochmaben. It was opened in March, 1924, with 56 beds, and accommodation is so much sought that there is at present a waiting list of twenty patients. There were 53 deaths from pulmonary tuberculosis in Dumfries-shire in 1923, and, assuming that there were five sufferers from the disease in an advanced form for every death, that meant that in the county 200 to 250 persons were definitely suffering from the disease, with only 22 beds at disposal. In the whole area covered by the Southern Counties' Sanatorium there were 162 notifications of pulmonary tuberculosis in 1923 and 118 deaths. It was therefore impossible to hope for eradication of the scourge unless there were far more than 56 beds available for the whole area.

DENATURED METHYLATED SPIRIT.

At a meeting of the Pharmaceutical Society in Scotland on December 17th, 1924, Mr. Anthony McMillan, Glasgow, in the chair, a paper was read by Mr. James Jack, Ph.C., F.L.S., on picric acid and pyridinized methylated spirit. He said that the Board of Customs and Excise, with a view to putting a stop to the habit of methylated spirit drinking, had caused the addition of crude pyridine to methylated spirit to render it undrinkable. This addition had created several difficulties in the use of methylated spirit for pharmaceutical and surgical purposes. For example, a solution of picric acid was frequently used in surgical and hospital practice. Crude pyridine contained several alkaloidal basal substances which formed an insoluble precipitate with picric acid, thus making the new form of methylated spirit incompatible as a solvent. This and other objections to the presence of crude pyridine in methylated spirit had induced the Pharmaceutical Society and the British Medical Association to approach the Commissioners of Customs and Excise with a view to securing elimination of pyridine or permission to use industrial methylated spirit for pharmaceutical purposes.

INVERNESS DISTRICT ASYLUM.

From the sixtieth annual report of the Inverness District Asylum by the medical superintendent, Dr. T. C. Mackenzie, it appears that 159 cases were admitted during the year ended May 31st, 1924; this, with 665 persons on the register at May 16th, 1923, made a total number of cases under treatment during the year of 824. The admissions were 14 more than for the previous year but 4 less than the average of the last five years. Of the patients admitted, 51 had previously been under asylum treatment, giving a readmission rate of 32 per cent. The ages of those admitted varied from 15 in the case of one male to 84 in the case of one female; 20 patients aged 70 and upwards were admitted. The patients admitted during the year fell into the following groups: 81 were cases of melancholia; 21 cases of mania; 40 were cases of dementia, of which 11 were secondary to previous attacks of mental disorder from which the patient had not recovered; 24 were associated with senile decay and 5 with epilepsy; 7 cases suffered from congenital mental deficiency, accompanied in 2 by mania and in 1 by melancholia. Dr. Mackenzie found that hereditary predisposition to insanity existed in 55 of the 159 cases, and in 66 of the cases there had been at least one previous attack of mental disorder. In 23 cases these two predisposing causes were combined. Senility was assigned as a cause in 38 cases, and indulgence in alcohol as a factor in 10 male cases. With regard to the discharges, 51 were dismissed recovered, giving a recovery rate on the admissions during the year of 32 per cent. for both sexes. The number of deaths during the year was 73, of whom 21 died from phthisis and 24 from senile decay; these two causes together were responsible for 61.6 per cent. of all the deaths. The report concludes with a review of the attention which is at present being paid to the early treatment of mental disorder, and urges the desirability of establishing a clinic in Inverness for dealing with patients suffering from incipient mental disorder without certification.

INDUSTRIAL EDUCATIONAL COUNCIL.

A body known as the Industrial Educational Council has recently been formed in Scotland with the object, among others, of educating the industrial workers on the diseases and sicknesses to which they are liable, with a view to their mitigation and prevention. The programme of the council is a double one: the first is to deal with the origin, history, and development of the various industries, with a view to giving the workers some knowledge of the industries in which they are engaged; and the other part of the programme, which is considered the more important, is a "health programme," designed with the object of educating the workers on the diseases to which they are liable. The council comprises over twenty medical members, the list including a number of medical officers of health for the principal cities in Scotland, and there are over thirty ordinary members and seven representatives of workers. The president of the council is Lord Salvesen and the secretary Mr. J. Mackenzie, who was for several years general secretary of the Y.M.C.A. National Council in Scotland. A special appeal has been issued on behalf of the council by the Lord Provost of Edinburgh, supported by the Lord Provost of Glasgow, and in this it is pointed out that in 1922 it was estimated that no less than 2,100,000 weeks' work was lost through sickness and disablement among the insured workers in Scotland. It is added that a large percentage of this was avoidable. The council is desirous of raising £10,000 to enable the work to be carried on effectively.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

The spring session of the St. Andrews Institute for Clinical Research will be devoted to the subject of renal efficiency. The meetings will be held on Tuesdays at 4 p.m., beginning on January 13th, when Professor Cathcart, F.R.S. (Glasgow), will read a paper on metabolism, with special reference to the kidney. It will be followed by a discussion, to be opened by Professor Herring and Dr. Hynd. The meetings will continue weekly until March

17th, and it is hoped to arrange a discussion to be held after that date on albuminuria in relation to life insurance. The subjects will be duly announced in the Diary of the JOURNAL. On Thursday, January 22nd, at 4 p.m., Professor Charteris will give a demonstration of kidney cases in his ward in the Royal Infirmary, Dundee. A meeting of the Association for Clinical Investigation will be held in Edinburgh on Saturday, January 31st. The morning session will be held in Professor Murray Lyon's ward in the Royal Infirmary at 11 a.m. An afternoon session will also be held. All practitioners are cordially invited to attend the lectures and discussions. The secretary of the Institute is Dr. J. Hunter P. Paton, St. Andrews, Fife.

Ireland.

SIR WILLIAM WHITLA.

SIR WILLIAM WHITLA has been elected a Pro-Chancellor of Queen's University, Belfast. He was educated at Queen's College, and graduated M.D. in 1877 with first class honours and a gold medal. He has been closely associated with Queen's University as professor of materia medica and therapeutics, and when he resigned his professorship four years ago he was elected to represent the University in Parliament. His *Manual of Pharmacy, Materia Medica and Therapeutics*, first published in 1882, reached its eleventh edition last year, and his *Dictionary of Treatment, including Medical and Surgical Therapeutics*, also reached its seventh edition during that year. Sir William Whitla was President of the British Medical Association at the Annual Meeting held in Belfast in 1909. His appointment as Pro-Chancellor will bring great satisfaction to his numerous friends.

MEDICAL REGISTRATION IN THE FREE STATE.

Mr. P. McGilligan (National University), Minister for Industry and Commerce, referring in the Saorstat to the position of medical students who passed and got their qualifications, and who, prior to a date in 1923, were validly registered, said it had been believed that, owing to the joint action of a section of the Constitution and a certain adopting Act, the position prior to the introduction of the Irish Free State had continued. He had attended a conference on the subject, and there seemed no doubt in the minds of the British representatives, but it was deemed advisable that legislation should be introduced in the Free State and in the British Parliament to validate what had been done previously, and continue in operation the General Medical Council for a period to be defined in the Acts. The legislation was to be corresponding, correlative, and complementary. He had introduced a bill as a matter of urgency, and it was almost immediately brought into the Seanad, and while engaged in the Seanad he was informed there was a certain point still in dispute. He had treated the question as one of great urgency, and he asked the House to treat it as such. He had not had any indication of anything seriously affecting the medical profession, and he was not aware of any such situation as had been represented in the press; nothing had happened, so far as he was aware, to change the situation. There had been no indication of any likely action to put an end to the prevailing state of things. The position remained as it was after the conference in London. If those in England connected with the matter did not know the reason for the excitement, if he (the Minister) did not know, and if the people who would be expected to advise him when they thought anything critical was coming on did not know, he (the Minister) did not see that there was any situation developing. At a gathering recently remarks were made by a surgeon which were interpreted in quite a different manner from what was really meant. He had received a telegram to the effect that the position would be unchanged until February, and the interpretation was that if a student were not qualified in January the last chance had gone. The use of the word February was probably due to the fact that the legislation would be passed by February.

At a meeting of the representatives of the medical and dental students of Connaught and Munster the following resolution was unanimously passed:

> That the medical students of the University Colleges of Cork and Galway view with strong disapproval separation from the General Medical Council and the establishment of a separate medical council for Ireland, and we, therefore, urge members of the Dail and Senate, and the Irish representatives on the General Medical Council, to take the necessary steps to secure that the present arrangements remain unchanged.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

At a meeting of the Surgical Section of the Royal Academy of Medicine in Ireland, on December 12th, Mr. A. K. Henry and Dr. D. K. Milne Henry described, with the aid of lantern slides and specimens, an anatomical collection that is being prepared in order to illustrate operative surgery. Each specimen was labelled to indicate the lines of incision, and the various structures were appropriately coloured. Landmarks and planes of cleavage were shown by means of simple diagrams. This collection had been begun at the Royal College of Surgeons, Dublin, with the double object of helping students of operative surgery and of constructing a kind of reference library for the practising surgeon. The preparations shown included the exposure of the popliteal face of the femur from the outer and inner sides; the Spren[illegible] Smith-Peterson exposure of the hip-joint; and Royle's exposure of the lumbar sympathetic system for section of the rami in spastic paraplegia.

Correspondence.

PUERPERAL INFECTION.

SIR,—The question of a prophylactic immunization in preparation for childbirth, raised in the discussion in your columns, is one of great interest and perhaps of some importance, and a brief note of some work on this subject carried out by us in 1913-14 may be of interest.

Working on the out-patient maternity clinic at the London Hospital, under the care of Dr. Russell Andrews and the late Dr. Drummond Maxwell, we inoculated a series of 500 patients with a mixed streptococcus vaccine. The vaccine was made up partly from strains derived from the vaginal cultures of healthy pregnant women and partly from organisms isolated from the blood and uterus of cases of puerperal infection; the latter (mainly *S. pyogenes*) constituted the bulk of the vaccine. Usually two subcutaneous inoculations were made at weekly intervals, and we aimed to give them within two or three weeks of delivery; with an out-patient this date is mostly rather uncertain, but we found that 60 per cent. fell within one month of delivery and approximately 90 per cent. within two months. An amount of the mixed streptococcus vaccine containing 50 or 100 million was given for the first injection, and either 100 or 200 million for the second. Something like 3,500 uninoculated cases which were attended on the charity during the same period served as a control.

During the war years some of the notes were mislaid or lost, but, speaking from memory, certainly one and possibly two of our inoculated cases died of streptococcus infection; this gives a far higher percentage mortality than occurred in the uninoculated part of the clinic, though, of course, with such comparatively small numbers it is useless to argue about it. On the other hand, the general morbidity in our 500, including para- and peri-metritis, was less than among the uninoculated. However, it was clear that we had not achieved our end, and it was our intention to start again, using possibly a sensitized vaccine.

There are clearly serious difficulties in the project, which may be briefly discussed under the following heads:

1. *Infecting Agent.*—In fatal cases almost always a streptococcus, by laboratory classification generally corresponding to the type *S. pyogenes*, is present, but this type may include many strains; quite possibly each strain derived from a human host differs, *ipso facto*, from every other strain. In a certain number of less severe cases a short-chained anaerobic type of streptococcus is found.

These two types of organism would cover most of the severe cases.

2. *Degree of Immunity Required.*—It is probable that a high general degree of immunity would be necessary to prevent an infection with a pathogenic streptococcus gaining access to the uterus. There is, of course, the large raw area of the placental site, but, more than that, the uterus is physiologically decadent and proceeding to involution. In animals a high degree of immunity is only attained by prolonged and rather heroic measures such as are out of the question with the human subject.

3. *Dangers to be Avoided.*—If the danger to the patient is to be *nil* and the inconvenience slight, as we held it should be, we must rely on a gradual immunization, which is likely to be less effective than that which more active measures would produce. In our series we had one or two swollen arms which distressed the patients rather, but there was no direct evidence that anything in the nature of premature birth resulted from the inoculations, although some 13 per cent. of our series were delivered within the first week after the inoculation. Another danger—that of a temporary lowering of the resistance to infection—is believed to be a possible result of inoculation; our figures do not throw much light on this aspect of the problem.

4. Finally, this is an experiment in immunization which must be undertaken in a wholesale way if the figures are to be large enough to eliminate the chance factor, and it is a great question whether our knowledge of streptococcal immunization is sufficiently advanced to warrant this being done.—We are, etc.,

T. H. C. BENIANS.
S. GORDON LUKER.

London, W.1, Dec. 19th, 1924.

THE GENERAL PRACTITIONER AND THE MATERNITY SERVICE.

SIR,—Some of your correspondents are under a misapprehension regarding the object of my letter to the BRITISH MEDICAL JOURNAL (October 4th, 1924, p. 642).

My chief purpose was to emphasize the necessity for improved clinical training in obstetrics. The correspondence confirms the opinion originally expressed, that existing educational arrangements are deplorable, and that increased facilities must be provided in the near future, both for undergraduates and practitioners.

As daughter and assistant of a country doctor, having been for some years in consulting practice, I fully realize the splendid midwifery work done by the general practitioner, frequently in face of perplexing and almost overwhelming difficulties, for which in many cases he has not been prepared by adequate training. The thousands of efficient obstetricians amongst general practitioners, for the most part, owe their skill to experience and not to early teaching.

There is another misapprehension. The rest of my suggestions apply only to State-aided cases, and not to private practice. The whole subject demands investigation and reform, and it is hoped that before long a Royal Commission may be appointed.—I am, etc.,

A. LOUISE MCILROY.

London, W.C.1, Dec. 22nd, 1924.

SIR,—Writing on the above subject in your issue of December 20th, 1924 (p. 1177), Dr. Alexander Blair has quoted a paragraph from a previous letter of mine, and has gone on to interpret it in a manner so wide of the mark that I am obliged to correct him.

I have not now, nor ever have had, a contempt for general practitioners—I have, on the contrary, many friends and acquaintances among them for whose work I have the greatest admiration, and am not vain enough to suppose my experience in this respect to be unique. I have criticized, on occasion, the actions of individual practitioners or groups of them, and have been subject to the same criticism myself.

Unskilled midwifery means mismanagement of the childbearing woman at any time from the commencement of pregnancy to the end of the puerperium, and sharing the responsibility for it are medical officers of health and their subordinates engaged in maternity and child welfare work, hospital consultants, general practitioners, midwives, the women themselves with their fears and resulting prejudices, and their well meaning but sometimes ignorant relatives. We are all in it; and if drawing attention to the matter gives special offence to general practitioners, it would suggest that they are no more easy in their minds about the obstetrical side of their work than are practitioners of preventive medicine—which is a wholesome state of mind and to be encouraged until improvement comes about.

As regards suggested panaceas we are bound to differ according to our respective points of view and work experience; but may I suggest to Dr. Blair that it is a little invidious (even to the accompaniment of a complimentary epithet!) to stigmatize the views and faiths of other medical workers as "pathetic," and also that the tide of organization, specialization, and officialdom being fully upon us in this twentieth century A.D., it were well to use it to our patients' advantage rather than try to sweep it back with a Mrs. Partington's broom.—I am, etc.,

AGNES HILL NICOLL.

Willesden, Dec. 23rd, 1924.

SIR,—In the interests of the community and of the medical profession I feel, as a practitioner of thirty years' standing, that it is my duty to protest against the tone of perfection advocated by Professor Watson in his address to the Edinburgh Obstetrical Society. Professor Watson's ideal is magnificent but is entirely unsuited to society as it exists. The net result of the elaborate precautions advocated is that the young men immensely magnify their office and charge such enormous fees that the public are ceasing to employ them, greatly to their own detriment and to the destruction of the doctors. My experience, though not great, has been spread all over England. I held every student appointment possible at Guy's, and when "Charity" over five hundred cases were attended. Over three thousand cases per annum were attended by students in the foulest districts in the Borough, and yet the deaths averaged 3 per annum from all causes. If such a result could be attained without the lofty but impracticable methods of Professor Watson, why rob the community and the doctors of their just dues? The bulk of puerperal fever, as Dr. Comyns Berkeley has declared, is due to auto-infection, which I know to be true, as in the cases of sepsis I have had in my own practice the children have had suppurative ophthalmia, which must have been due to maternal vaginal infection.

Those infected by the attendants are, in the opinion of a vast number of doctors, due to dirty hands. What other reason can be effective when one considers the experience of the Guy's charity? The men soaked their hands in mercury perchloride 1 in 1,000, and again they soaked them. The necessity of mercurial antisepsis had been rubbed into them. The primal focus of mischief is unwashed hands. Wearing gloves causes a man to be less careful to wash his hands, and lack of sense of touch renders him less careful to soak them constantly. Professor Watson will say they should not, but they do.

Dr. Peter Horrocks used to tell us that one cannot be sure of an occipito-posterior position. All of us have seen breeches mistaken for heads, even by the cracks. It is the general experience that a greatly handled case rarely becomes septic. Clean hands and no vaseline, and there is no need for all the precautions that have robbed the public of their rightful attendants. The ante-natal teaching is admirable, but the fallacies are terribly frequent.—I am, etc.,

VAUGHAN PENDRED.

East Sheen, Dec. 28th, 1924.

NEAR SIGHT AND CIVILIZATION.

SIR,—I have read with much interest the account of Sir Arthur Keith's lecture in the BRITISH MEDICAL JOURNAL of December 20th, 1924 (p. 1172), in which he alludes to my theory of myopia, and states that if muscular exercise caused myopia all would suffer from it; but the same argument might be used with regard to tuberculosis, in which only a certain proportion of those exposed to infection contract tuberculosis. If the direct exciting cause of myopia be increased intraocular pressure, as I am firmly convinced it is, whether the eye will dilate or not will depend upon

the strength of the eye and the condition of the health of the person. For instance, a boy in a debilitated condition, as after measles, may become myopic on lifting heavy weights when in his normal health he would escape.

The general athlete rarely becomes myopic; probably through training his eyes have acquired a strong power of resistance. Myopia appears to be caused, and may appear, at any age, particularly in those who having had a sedentary occupation suddenly take to one which causes a considerable and intermittent increased intraocular pressure, as for instance a shop assistant who becomes a carter and has to lift heavy weights which would present no difficulty to a stronger man. The forms of exercise to be avoided are those which cause the veins of the neck to stand out, thus obstructing the return of blood from the eyes.

If this intermittent increased intraocular pressure be avoided the eyes may become less myopic or even emmetropic.—I am, etc.,

London, N.W.2, Dec. 20th, 1924. F. W. EDRIDGE-GREEN.

APOMORPHINE IN ANGINA PECTORIS.

SIR,—I happened to see to-day a letter by Mr. Cyril Helm, D.S.O., F.R.C.S., in the BRITISH MEDICAL JOURNAL of June 28th last, on the treatment of angina pectoris, in which he describes a fatal case of an anginal seizure.

Although very late, I should like to draw attention to the effect of a hypodermic injection of apomorphine in such cases. I have seen it act like magic, and I have suggested this treatment to several medical men, who have reported surprisingly good results. The use of this remedy came about in a somewhat curious manner. A bush doctor in Australia (the late Dr. Symes) told me that he was called in one evening to see a man who was suffering from an agonizing pain over his heart. He was pulseless, speechless, and apparently dying. In order to afford some relief he hurriedly gave him a hypodermic injection, as he thought, of morphine, but to his horror he found that by mistake he had given apomorphine. He consoled himself with the thought that, in any case, the man could have lived for only a very short time. To his intense astonishment, in a few minutes the pain stopped, the pulse returned, and the man was able to lie down in comfort.—I am, etc.,

ALEXANDER FRANCIS, M.B.

London, Dec. 26th, 1924.

REX *v.* BATEMAN.

SIR,—From the report of the trial Rex *v.* Bateman it is difficult to gather the grounds upon which Dr. Bateman was convicted for manslaughter. It is clear (1) the uterus was ruptured, but it is not stated when or how; (2) the uterus was removed with the placenta; (3) the rupture of the uterus and the removal of it did not cause death, either by shock or by bleeding; and (4) death was induced by septic infection—a common enough ending to parturition without any tear of any part of the genital tract. It will be no wonder if the verdict of the court should create consternation amongst practitioners who are engaged in midwifery practice. We may ask, Why any sentence and not acquittal?

A matter of great importance regarding the dispensation of justice has been brought to light in this case. A pathologist, a non-practising doctor, who in all probability has seen but little if any obstetric work, and has never been actually engaged in it, has permitted himself to give in a court of law an opinion which laymen, from the learned judge downwards, would undoubtedly accept as equivalent to that given by a real true expert on the subject. The opinion given was "that if the woman had been operated upon she would have had some chance of surviving, and that she would have been fit for an operation before she was removed to the hospital."

The pathologist can hardly have realized that by so acting he placed himself in a false position, and in that of one who knows. In reality, among his professional brethren, he could not pretend to a practical knowledge or acquaintance with either midwifery or surgery. Moreover, as he had not even seen the patient, obviously it was impossible for him to judge whether the woman had any chance of recovery after an operation or whether she was in a fit state for removal before the date actually determined upon.

The injustice that might arise from the expressions of opinion by a pathologist in a court of law upon subjects outside the scope of his work concerns all doctors throughout the land; and from the trend of events it would appear that the time is ripe for concerted action by doctors for restating in unmistakable terms their relation to the public, and for the public to realize that their best safeguard lies in the willing acceptance of responsibility by qualified medical men for the treatment of their injuries and diseases. Without that willing acceptance regularized doctoring must inevitably come to be worked on a contract basis between doctor and patient. Medical practice under such conditions would soon get into a deplorable state, and that would mean nothing less than ruin to British medicine.

I apologize for the length of my letter, and my only excuse is the gravity of the situation revealed by this trial.—I am, etc.,

Cambridge, Dec. 22nd, 1924. JOSEPH GRIFFITHS.

SIR,—Every medical man practising in an industrial area—that is, one where midwives flourish—will read the account of the trial Rex *v.* Bateman with grave uneasiness. The average midwife seldom sends for a doctor until forced by the relatives to do so, and when we are called in to deal with a case of prolonged labour it is generally to find the patient weak and frightened, worn out with pain, and some complication which should have been dealt with hours before. Under these unfavourable conditions we do our best. Most of the cases do well. But it now appears that this is not enough. If our treatment is unsuccessful we are liable to be prosecuted for incompetence, and, if we lose the patient, perhaps to be convicted of manslaughter. It is an intolerable position, for no one who is not actually present at a case can form a just opinion of the difficulties encountered and the skill brought to overcome them. There is no definite evidence that Dr. Bateman was grossly unskilful, and he was working under very bad conditions—how well we can all picture them! When he discovered the truly appalling calamity of a uterus torn out he admittedly did all that was possible for the unfortunate woman. Yet he is guilty of manslaughter. In my opinion the conviction is unjust, and if it is not quashed on appeal I suggest that doctors should in future cease to attend midwives' cases at the patients' own homes, but send them all into hospital. I do not believe the results would be any better, and the patients would certainly object, but we should at least escape the possibility of a fate like Dr. Bateman's. Also we should preserve our self-respect, for I do not see how we can preserve it if we feel that our actions and treatment may afterwards be criticized by ignorant laymen.

We are not told the *post-mortem* findings in this case, but if the woman was really in labour for forty-eight hours with a transverse presentation, spontaneous rupture and separation of the uterus are possibilities. The absence of an account of the nurse's evidence is to be regretted.—I am, etc.,

Hebburn-on-Tyne, Dec. 20th, 1924. H. C. BROADHURST.

PROBLEMS IN NUTRITION.

SIR,—To those of us who are specially interested in the relation that exists between dietary and stamina, dietary and longevity, and dietary and fertility, your report of Colonel McCarrison's lecture (December 13th, 1924, p. 1126) comes as a record of observations of extreme value.

I well remember investigating the dietary of some Sikh regiments at Lahore. I knew that they were men of splendid physique, tall, stately, agile, capable of great endurance, and renowned for their courage. I asked them if they ate meat, and they said that at home they did not, but that when they joined the army they did. I then inquired how many ounces or pounds each man ate a day. At this there was great hilarity, and then it was explained to me that once a month, on pay day, each company clubbed together and bought one little goat, and this they killed and cooked and ate! A few ounces apiece once a month!

It would be well for every practising physician who has

been brought up to believe in the value of flesh foods and meat broths and beef teas, for the promotion of and restoration to health, to ponder carefully the nutritional problem involved in the statement by Colonel McCarrison, that among races who lived upon a lacto-vegetarian diet "the highest degree of physical efficiency . . . among any of the races of mankind was found," and that peoples in the extreme north of India who lived upon a lacto-vegetarian-fruitarian dietary "had exceptional powers of physical endurance, gastro-intestinal disease was extraordinarily uncommon, and they retained vigour to a very old age." It is well to remember that the climate in this part of India is more trying than in England. I have been almost baked during the day there, and almost frozen during the night.

Now that the importance of dietary in health and in disease is being recognized, it is well to note and record with the greatest care all accurate observations that can be made upon considerable bodies of men and women.—I am, etc.,

Rapallo, Italy, Dec. 19th, 1924. JOSIAH OLDFIELD.

MILK AND ARTERIO-SCLEROSIS.

SIR,—As long as the average adult only tolerates the presence of milk in his cup of tea, it is rather a stretch of the imagination to assume that such small quantities as are imbibed can damage the arteries. Now if it can be shown that the incidence of arterio-sclerosis is greater in America and Scandinavia than in this country, I shall sit up and take notice. The type of person whom one comes across suffering from this complaint does not exactly strike one as being a milk maniac—unless it is "Bristol milk"! And if the calcium in cow's milk is indicted why should ordinary hard drinking water be exempt?

It has been stated that the calcium in cow's milk is in a non-ionized form, and that therefore, in order to be utilized by the tissues, it must first be ionized. Certain ductless glands are supposed to be responsible for this work, and what is not required for body needs is passed in the faeces as calcium soaps and otherwise. I do not venture an opinion as to whether the proteins of milk can be regarded as a factor, but I cannot see how calcium can.—I am, etc.,

Wellington, Salop, Dec. 13th, 1924. A. D. SYMONS, M.D.

ACCLIMATIZATION TO HIGH ALTITUDES.

SIR,—May I claim the courtesy of your columns to suggest to Dr. Haldane and other investigators of the physiological problems of high altitudes that the main aspect of the case has escaped attention? A careful examination of the signs and symptoms of disordered function which occurred in the members of the Mount Everest expedition during the ascent, points inevitably to the conclusion that such manifestations are identical with those of the gradual and rapid onset of hyperthyroidism.

The first sign of trouble is tachycardia accompanied by panting on slight exertion, followed by nausea, difficulty of sleeping, giddiness, lividity, loss of muscular power, persistent wasting, diarrhoea, mild tremors, mental confusion, and in a few cases sudden death. All the classical signs and symptoms are exhibited, even to the distaste for meat.

McCarrison, in his classical book on the thyroid gland, states that the thyroids "in healthy animals, living at sea level, or 1,000 feet above, are in the colloid or resting stage." He adds that "the functional activity of the [thyroid] gland appears to increase with residence at increasing heights above sea level." This, I submit, is the true explanation of the clinical syndrome observed in the historic ascent of Mount Everest.

Dr. Haldane notes in his lecture (BRITISH MEDICAL JOURNAL, November 15th, 1924, p. 885) that cases showing neurasthenia or disturbed action of the heart developed most urgent symptoms when submitted to a slight diminution of atmospheric pressure. This is a most interesting and suggestive note. Many cases labelled neurasthenia and disordered action of the heart are in reality suffering from overaction of the thyroid gland. If diminished atmospheric pressure causes increased urgency of symptoms of thyroid overaction, it is but natural to suppose that increased atmospheric pressure would diminish the urgency of these symptoms, and it is possible to imagine that, in the future, treatment of hyperthyroidism may proceed along these lines.

It is found that Italians stand increased atmospheric pressure well and are therefore generally made use of for caisson work. It is significant that the quick, brilliant, emotional Italian with flashing eyes suggests an active thyroid and a high basal metabolic rate, and his use for caisson work appears to support the theory that an overactive thyroid would benefit by increased atmospheric pressure. The phenomena of "caisson disease," or compressed air illness, may be explained as due to exhaustion of the thyroid gland and subsequent hypothyroidism. The "bends" complained of by caisson workers are similar in origin to the contractions of tetany following complete extirpation of the thyroid gland. It is to be expected that men showing signs of slight hypothyroidism and a low basal metabolic rate, as evidenced by a somewhat stolid countenance, slow pulse, and slow speech, would, other things being equal, make the best air pilots and members of any future Mount Everest expedition.

Medical experience of the examination of airmen comes into line with this theory. Many of the essential tests of air efficiency are based directly or indirectly on a stable thyroid gland. It is well known that after a great shock an air pilot becomes nervous and loses efficiency in the air. Maublanc and Ratié in their manual of examination of airmen note that a number of pilots showed marked acceleration of the pulse at starting, which was even more marked on landing. This is a most important matter for the safety of the air service, and it is possible that eventually the test of efficiency for pilots during service will be based on the estimation of the basal metabolic rate, or some better method of estimating the activity and stability of the thyroid gland.

It is tragic to think that if the cylinders of oxygen carried by the Mount Everest expedition had been left behind and some tablets of quinine hydrobromide, pancreatin, insulin, bromides, and possibly parathyroid, had been taken instead, the expedition might have had a successful issue and valuable lives have been saved.—I am, etc.,

London, W.8, Dec. 14th, 1924. A. M. GALE, B.Sc., M.D.Glas.

CRITERIA OF TRANSMISSION AND CULTIVATION OF ENCEPHALITIS AND ALLIED VIRUSES.

SIR,—Dr. McCartney, in the BRITISH MEDICAL JOURNAL of December 20th, 1924 (p. 1159), makes several sweeping assertions concerning the results of experimental investigations into the etiology of encephalitis lethargica. For my purpose it will be sufficient to quote part of his summary, where he states that "normal stock rabbits reveal in a high percentage of cases lesions identical with those described by other workers as evidence of the experimental transmission of encephalitis lethargica." Now, being one of those other workers specifically mentioned, I cannot allow this statement to pass unchallenged. Here I shall be as brief as possible, as my opinion on this criticism, which was originated by Dr. Flexner in America, has already been published both in this country and in America. For the following reasons the arguments put forward by Dr. McCartney are invalid:

1. Spontaneous encephalitis of rabbits, whatever its frequency may be in America, is a rare disease of our animals.
2. Only the inoculation of virulent material from human cases of encephalitis lethargica produced an encephalitis in rabbits, and never the control material.
3. Spontaneous encephalitis of rabbits is mainly a chronic disease, whilst experimental encephalitis is an acute infection.
4. The histological lesions of the two diseases are sufficiently distinct to be readily distinguished by microscopical examination, whilst the possibility of the demonstration of the parasite of spontaneous encephalitis gives a conclusive distinction.

In view of the above facts I do not think that Dr. McCartney's criticisms are applicable to the work done in this country, and as far as I know there is only one instance where the disease transmitted to rabbits from human encephalitis bears any resemblance to the spontaneous encephalitis of rabbits. We admit that there is still much

to be learned concerning the etiology of this protean human disease, but criticism to be helpful must take cognizance of all details.—I am, etc.,

JAMES MCINTOSH.

The Bland-Sutton Institute of Pathology,
The Middlesex Hospital, London, W.1,
Dec. 22nd, 1924.

CYCLE DELIVERY OF GOODS AND HEART STRAIN.

SIR,—During the past fifteen years I have treated an ever-increasing number of cases of heart strain in boys of 14 to 18 years of age, whose occupation consisted in the delivery of goods by means of cycles with carriers. The heart symptoms were generally progressive, appearing after one or two years' work. They presented more or less the same features—namely, dyspnoea, faintness, or giddiness, with tachycardia, and the apex beat displaced downwards over a somewhat diffused area. The weight carried by these boys ranged from 10 to 80 lb., which, against a strong wind or uphill, represents considerable energy in foot-pounds. There does not appear to be any existing law which fixes the maximum weight to be carried on cycles by boys. Though the work could be efficiently done by dog traction, as seen in Belgium, Switzerland, and Luxembourg, this is forbidden by an Act of 1854.

Therefore, as dog traction, even under the best conditions, is barred, and there does not appear to be any legislation whatever controlling the weights carried, boys in increasing numbers are receiving irreparable heart injury, directly due to the excessive strain caused by their work during a susceptible period of their lives. The majority of the cases I have seen had no rheumatic history or evidence of pre-existing heart trouble.—I am, etc.,

J. H. KEPPEL-COMPTON, M.R.C.S.,
Southampton, Dec. 9th, 1924. L.R.C.P.

TREATMENT OF MOBILE BACKWARD DISPLACEMENT OF THE UTERUS.

SIR,—I was much interested in Professor Donald's paper published in your issue of December 13th, 1924 (p. 1087). In February, 1924, I collected and published (*Lancet*, February 2nd, 1924) a series of 50 cases in which sling operations had been performed for retroversion between the years 1916 and 1922, by various members of the staff of the Hospital for Women, Soho Square. While excluding cases of retroversion in the presence of prolapse, my results are not strictly comparable with Professor Donald's, as cases other than *mobile* retroversions have been included in my series, but they serve strongly to support his statement that "complications are generally the only things that matter in retroversion and not the displacement itself."

Of the 50 cases operated on in my series no fewer than 31 had complications—most commonly pelvic adhesions and inflamed tubes; and of the 20 per cent. of cases cured and 26 per cent. relieved by the sling operations, 80 per cent. had complications requiring treatment.—I am, etc.,

London, W.1, Dec. 22nd, 1924. ALICE BLOOMFIELD.

"SAUCE FOR GOSLINGS."

SIR,—I am a frightened gosling. I want some old gander (a nice respectable one) to tell me what I may, or may not, do. How can I write when I want to without the risk of being called to stand before the judgement seat? As things are, those of us who use pen and ink and paper in a laudable attempt to illuminate other people's darkness seem to be in considerable danger. At any moment we may be charged with "advertising"; and, if so charged, we shall find it difficult to rebut the charge. A man who writes for the public cannot help getting his name before the public. I have done it many times, and, so far as I know, I have been the only sufferer. Prospective patients shook their heads and sought medical counsel elsewhere. They were misguided, but they were logical. They argued that a doctor who wrote things down on paper could not also find time to listen properly to their tales of woe: they knew nothing of the infinite capacity for work of a general practitioner!

I am in complete agreement with Dr. Harry Roberts when he suggests that it is time for the collective opinion of the profession to express itself on this question of medical publicity. The outside world is laughing at us—not without reason. We are accused—also not without reason—of being parties to the establishment of a very real and very powerful medical priestcraft. We are reminded that in 1215 Pope Innocent III prohibited any operation in which blood was shed; and we are asked how long it will be before some other powerful person issues an edict forbidding any enterprise in which ink is shed! Do we not, as a profession, take ourselves a little too seriously? After all, ours is said to be a liberal profession. Yet in more than one direction it is possible to hear the rattle of fetters. There can be no harm in an examination of those fetters before we adopt them for constant wear.

In this question of medical publicity, I suggest, the one thing that really matters is the manner of the publication. Vulgar publicity must be frowned at. It is all a question of good taste.—I am, etc.,

Walsall, Dec. 21st, 1924. FRANK G. LAYTON.

ANTISEPTIC PASTES.

SIR,—Your leader on "Listerism and War Wounds" (December 27th, 1924, p. 1205), referring to a new chapter, "Postscript, 1924," says it will revive many memories and stimulate thought; it calls to my mind the fact that while the use of "bipp" was undoubtedly instituted by Mr. Rutherford Morison, and generally sanctioned by the weight of his authority, a preparation of the same character, approximately, was employed in France in January, 1915, in No. 11 General Hospital. At that time a sapper officer, well over 6 feet in height, was a patient, suffering from a butterfly fracture of the femur below the trochanter, with gas gangrene; his wounds were so extensive that dressing without an anaesthetic was impracticable, and nitrous oxide gas was administered daily by George Chapman, whom many will remember as a London Hospital rugger forward, and who was killed a few weeks later at Neuve Chapelle. Unfortunately, the supply of gas ran out, and the difficulty of dressing the wound became acute; but a compound of iodoform 1 part, bismuth subnitrate 2 parts, with sufficient glycerine to render it viscous, was suggested by the late Philip Ferguson, F.R.C.S. This was injected into the depths of the wound and smeared over the surface, at first every third day, later once a week. The success of the mixture was immediate, the temperature chart showing a drop to normal and remaining there for the period of the officer's stay in France. Owing to the extreme height of the patient he was treated on a specially made quadrilateral box, covered with canvas, having a compartment for each limb and an area cut out underneath the wound area. He was ultimately transferred to England, and after some early difficulty in persuading the surgeons there to allow him to retain the limb, he made an excellent recovery, and was, I believe, the first "fractured femur" to return to duty in France.

Reference to Sir George Makins would, I think, confirm these statements. It should be noted that the technique differed somewhat from Mr. Rutherford Morison's, in that glycerine, then available in sufficient quantity, was employed as the excipient, and that no attempt was made to close the wound, no "excision" having been effected. At the same time, I have long felt it due to Ferguson's memory that he should have some of the credit of bipp. Our mixture was employed in many severe cases at that time, but with the dispersal of many of our officers to the line I fancy it fell into disuse until the bipp revival in 1916.

At this season one's thoughts hark back to old times and to friends who have gone. Philip Ferguson, who was a Manchester man fresh from doing a job at Golden Square, survived the war, but died early in 1919; S. W. McLellan of Liverpool, who was our bacteriologist and took much interest in our "bismuth porridge" cases from a cultural point of view, also died—on his honeymoon—in 1919. Those who have had the opportunity of reading the private diary of the war kept by the latter will share the opinion of his personal friends as to the loss that literature as well as medicine sustained by his untimely death; he illuminated everything he touched, from bacteriology to bull-dog rearing.

It makes a commentary on the grimness of the long struggle that of twenty-five "Irregular" officers who were a hard-wrought, whole-souled, and happy mess in the early months in No. 11, I can trace no more than four alive at Christmas, 1924.

With apologies for the discursiveness of this letter, I am, etc.,

Sunderland, Dec. 25th, 1924. W. GRANT WAUGH.

NOTIFICATION OF INFECTIOUS DISEASES.

SIR,—The Infectious Disease (Notification) Act, 1889, enacts that—

"A medical practitioner attending on or called in to visit the patient must, on becoming aware that the patient is suffering from an infectious disease, forthwith send to the medical officer of health a certificate, stating the name of the patient, the situation of the building, and the infectious disease from which, in the opinion of such practitioner, the patient is suffering."

Does this mean that in the following cases all the medical practitioners concerned shall notify the case and receive the legal fee: principal and assistant or locumtenents, medical practitioners in partnership, transfers from one practitioner to another in the area of the same local authority?

Is there any recognized custom in such cases? A comment in *The Laws of England*, vol. 23, p. 448, on the above section suggests that where more than one medical practitioner attends a patient the obligation to send a certificate seems imposed on each one, and each is entitled to a fee.—I am, etc.,

Worcester, Dec. 22nd, 1924. ARTHUR FOSTER.

*** Section 3 (*b*) of the Infectious Disease (Notification) Act, 1889, reads: "Every medical practitioner attending on," etc. On page 821 of the seventh edition of Lumley's *Public Health Acts*, vol. i, there is an annotation to the effect that "in reply to an inquiry addressed to them on the subject the Local Government Board stated that they were advised that if more than one medical practitioner is attending on or called in to visit the patient, each practitioner is bound to send a certificate, and is entitled to the prescribed fee." The recognized custom is, however, for a local authority to require only one certificate. If in any particular instance a practitioner is in doubt as to whether a case has been notified he should forward a certificate to the medical officer of health, and he will be paid the usual fee.

ADMINISTRATION OF MEDICAL SERVICES.

SIR,—I suggest that the question of administration of medical service is one that requires consideration. National health insurance has set up an incomplete State medical service, and when that has been extended, and 60 to 70 per cent. of the population are included in it, independent practice will be considerably smaller. Only men in public posts—and not all of them—appreciate the effect of a certain doctrine that doctors are incapable of controlling medical affairs. One explanation given is that they are not business men. It is curious that this is often accepted as a complete explanation, and there is failure to perceive the anomalous position of the doctor. It will be impossible to correct long-standing ideas in a few months, and it might be desirable to consider the subject before any definite proposal for a complete State service is made rather than wait to hear what is proposed.

The root of the matter seems to be an indefinite relationship between the profession of medicine and society. When Governments appoint Royal Commissions to inquire into matters of public health and omit to make doctors their representatives, they nevertheless take care to call medical evidence. It would seem that work is valued, but space for working in is not estimated.

Local government bodies who appoint medical men to advise them in health administration delegate authority to lay officials so that public health may be represented. Therefore, speaking generally, advice is sought and in most cases is followed, but authority and representation are not allowed. Of course, this arrangement pleases those who are put in the intervening positions, and all of them agree that doctors are unfitted for administration. The latter term, of course, is comprehensive, not limited to certain branches of work, and a due advantage is taken of its full meaning.

In this way men who write letters, add up figures, and see about repairs, come to control medical service. The effect is not fully realized by the majority of doctors because they have not come into sufficiently close contact, but opportunity will arise when a full-blown State service comes into force governed on these lines. It will be too late to do anything then, however.

To illustrate by comparison: Suppose the general principle now in force to be applied in its literal form elsewhere; suppose it to be held that a professional soldier can only act in an advisory capacity; then an army would be commanded by a layman, representing public authority, who would have under him a general for the purpose of advising him on military actions that had to be taken. One need hardly say that administrative schemes like this do not work well, and actual examples from medical services could be given of their failure and the modifications that necessity has demanded.

What good purpose is served by retaining a theory that breaks down in practice? To begin now to take practical steps to secure proper status and proper measure of control over their services for all men in whole-time posts would commence a new period of progress from which the whole community would benefit. The first and easiest step is at the bottom, where the doctor's case is unanswerable.—I am, etc.,

Southend-on-Sea, Dec. 8th. R. A. S. SUNDERLAND.

Obituary.

B. R. G. RUSSELL, M.D.,

Assistant, Imperial Cancer Research Fund.

WE regret to announce the death of Bertie Ronald Gordon Russell, which occurred, after a short illness, on December 22nd, 1924. Dr. Russell graduated M.B., Ch.B. at the University of Aberdeen in 1904, and became M.D. in 1908. After serving as an assistant in the pathological department of the University, he came to London in 1906, and acted as voluntary assistant in the laboratories of the Imperial Cancer Research Fund. The following year he joined the scientific staff, of which he remained a member until his death. During the great war he served in the R.A.M.C. from 1914 to 1918, first at the Royal Herbert Hospital, Woolwich, and later in Malta.

Russell's scientific work was almost entirely confined to the study of malignant disease, and on this subject he was recognized among experts the world over as a sound and trustworthy experimenter and critic. His early work was concerned chiefly with the study of resistance to the growth of implanted fragments of tumours. This resistance may be natural or induced; the induced or artificial form follows inoculations of normal tissues, or, sometimes, is a consequence of the growth of a tumour graft. Russell demonstrated that the anatomical basis of the resistance is a failure on the part of the host tissues to supply a vascular framework around and upon which the implanted tumour cells may grow. The development of resistance, which may occur concomitantly with the growth of implanted fragments of cancer tissue, was investigated with great care by him. It was a task which demanded an extraordinarily high standard of skill—operative, experimental, and histological. Few could have been found equal to the demand, but Russell succeeded in this work, and showed that differences between tumours in the power of inducing resistance are very great, and that the influence of the host tissues—"the soil"—is of little importance. In later work he was occupied with the comparison of the metabolic processes—the oxygen requirements, the powers of utilizing sugars, and so on—of normal and malignant tissues. The object of the work was to discover some measurable difference, apart from the fundamental difference in growth energy, between cancerous and normal cells. This work was still in progress at the time of his death.

For many years Russell was interested in the malignant transformation of the stroma of certain carcinomata. It

was for a long time the only method known of producing a new malignant growth. One carcinoma in particular which he studied was able regularly, on about the ninth week of its growth, to cause the connective tissue stroma, which is provided by the host, to develop into a sarcoma. It was natural, therefore, when it had been shown by Yamagiwa and his colleagues that tar, applied repeatedly to the skin, will induce a carcinoma, that Russell should attempt to induce a sarcoma by the same means. In this he succeeded.

In all his work Russell was very thorough and painstaking; his attention to detail saved him much labour. But it was in the difficult art of experimentation that he excelled; his judgement in the "lay-out" or disposition of an experiment enabled him to obtain answers to questions with a surprising economy of materials. As a colleague no man could have been more admired and respected. His learning, which was vast, was at the disposal of all; his kindness and patience were apparently limitless, whilst good humour, in good times or in bad times, never failed him. In public scientific controversy he would take no part, but delighted in the controversy or argument which is inevitable in a research laboratory; he was a very formidable but always scrupulously fair opponent in such discussions. To his friends he was a most lovable man, loyal, and charitable to weaknesses. He bore long-continued ill health with a courage and patience which formed a part of his strong character.

W. E. G.

JOSEPH MANSERGH PALMER, F.R.C.S.I., M.R.C.P.I.,
Surgeon, County Armagh Infirmary, Armagh.

THE announcement of the death, on December 21st, 1924, of Dr. Palmer at his residence, Infirmary House, Armagh, will be received with much sorrow by the profession in Northern Ireland, and by a very large circle of private friends and patients. Dr. Palmer was 74 years old, and had been connected with the County Infirmary of Armagh for over fifty years. His professional attainments were of a high order, and his skill in operative surgery was well known. Dr. Palmer was one of those busy men whose services are sought for by all around. He had been president of the North of Ireland Branch of the British Medical Association, and formerly was a very constant attender of its meetings. He was visiting and consulting physician to the Armagh Lunatic Asylum; consulting physician to the "Retreat," Armagh; physician to Shiell's Institute, Armagh; and held many other posts; he was also D.L. and J.P. for the county, and had held the office of high sheriff in 1906.

Much sympathy is felt for his widow and family, many of whom played a distinguished part during the war, both in the army and in the navy.

Dr. ERNEST ALFRED EDELSTEN, who died on December 18th, 1924, at his residence in Streatham, aged 63, was educated at the Boteler Grammar School, Warrington, New College, Oxford, and St. Bartholomew's Hospital. In 1884 he graduated B.A., with honours in natural science, and four years later won the Bentley surgical prize at St. Bartholomew's Hospital. In 1889 he obtained the M.R.C.S.Eng. and L.R.C.P.Lond. diplomas and the M.A., M.B., and B.Ch. degrees. His first appointment was that of house-surgeon to the East London Hospital for Children, Shadwell, and he afterwards served as house-physician and assistant house-surgeon at the York County Hospital. After a short period of general practice in partnership at Shirley, Southampton, he removed, in 1896, to Brixton. For the last four or five years, owing to ill health, Dr. Edelsten accepted no new patients, only keeping on the old ones, by whom he was very highly regarded. He spent a total of thirty years in general practice. He served for some time on the Executive Committee of the Lambeth Division of the British Medical Association, and on the committees of local medical societies. He took a considerable interest in post-graduate work. Since 1907 he had been an enthusiastic motorist, and until the beginning of the war was actively interested in golf and lawn tennis. He is survived by his widow and four children.

Dr. CHARLES JAMES PENTLAND was killed outside his house in Gower Street, London, on December 21st, 1924, as the result of a collision between a motor car and a lorry. Dr. Pentland received his medical education at Trinity College, Dublin, and graduated M.D., B.Ch., B.A.O. in 1910. He was assistant physician to St. Mary's Hospital for Women and Children, Plaistow, and *x*-ray dermatologist to the Western Skin Hospital. He was a Fellow of the London Dermatological Society, and of the Society for the Study of Venereal Diseases. His previous appointments included those of medical officer to the Rowan Dispensary, to the Royal Irish Constabulary, and to Dr. Steevens's Hospital, Dublin. He had published articles on *Ascaris lumbricoides* infection in children, and on diabetes from the physiological standpoint. He was a member of the British Medical Association.

Dr. RICHARD HOLGATE SHAW, who died on December 22nd, 1924, was born in 1868, and received his medical training at Leeds. In 1891 he obtained the diplomas of M.R.C.S.Eng., L.R.C.P.Lond. From 1892 to 1912 he was engaged in medical practice in Liversedge, Yorkshire, where he was medical officer of health and police surgeon. After a year or two of leisure he recommenced practice at Golders Green. He acted as medical officer of the Hampstead Garden Suburb Auxiliary Hospital from 1916 to 1919, and for his services there he was mentioned in dispatches and awarded the M.B.E. He held the post of surgeon to the Southern Division of the Metropolitan Police from 1917, and also that of surgeon to the Post Office in Golders Green. He had been a member of the Executive Committee of the Bradford Division of the British Medical Association from 1906 to 1909, and from 1920 to 1923 he was a member of the Executive Committee of the Finchley and Hendon Division. Dr. Shaw was a man of strong personality, highly successful as a general practitioner, and most popular with his patients and colleagues. After his final retirement in June, 1923, he lived at Bournemouth. He married Louisa Marion, daughter of the late Dr. Francis Boynton-Lee of Liversedge, who, with two daughters and one son, survives him.

Dr. SARAT KUMAR MULLICK, C.B.E., one of the leading medical men in Calcutta, died there on November 30th, 1924. He was educated at Calcutta University, St. Mary's Hospital, and Edinburgh University, graduating in the latter as M.B. and C.M. in 1887, and as M.D. in 1905. He took a leading part in medical politics in India, and was an ardent advocate of military service for the Bengalis. During the war he raised the Bengali Ambulance Corps, which served successfully in Mesopotamia. He had a considerable share also in inducing the Government to enrol a Bengali battalion for combatant service. He received the C.B.E. after the war, in recognition of his work. He was president of the Indian Territorial Force Committee, and had just attended a meeting at Delhi on this subject when he was attacked, on the return journey to Calcutta, by pneumonia, which proved fatal in a few days. Dr. Mullick was professor of medicine and clinical medicine in the National Medical College of India, and physician to the King's Hospital, Calcutta, two purely Indian institutions. He was also editor of the *Medical and Surgical Journal of the Tropics*, Calcutta.

The Services.

DEATHS IN THE SERVICES.

Lieut.-Colonel George Augustus Emerson, Bengal Medical Service (ret.), died at Parkstone, Dorsetshire, on December 27th, 1924, aged 72. He was born at Dinapur, and was the son of Lieutenant James Emerson, of the 26th Bengal Native Infantry. He was educated at Edinburgh, where he graduated M.B. and C.M. in 1876. He entered the I.M.S. as surgeon in October, 1877, reached the rank of lieutenant-colonel after twenty years' service, and retired on April 2nd, 1908. He served in the Afghan war of 1878-80, receiving the medal with a clasp, and in the Sudan campaign in 1885 at Suakin, gaining the Egyptian medal with two clasps, and the Khedive's bronze star. In this campaign, when the dervishes made a sudden attack on the British force as it was making camp, Emerson's regiment, the 17th Bengal Infantry, or Loyal Poorbeahs, was the one which was first attacked, and suffered very severe losses, their commandant, three other officers, and some 150 men being killed. The action is known by the name of Tofrek, or Baker's zariba.

Universities and Colleges.

UNIVERSITY OF LEEDS.

HONORARY DEGREES.

THE celebrations in connexion with the jubilee of the Yorkshire College of Science and the coming of age of the University of Leeds were described in our issue of last week, and it was mentioned that the University had taken the opportunity of conferring honorary degrees on a number of distinguished persons, including the Earl of Balfour, Chancellor of the University of Cambridge; Sir Michael Sadler, formerly Vice-Chancellor of the University of Leeds; Sir Berkeley Moynihan; and Dr. J. E. Eddison, formerly professor of medicine in the University.

In presenting Sir Berkeley Moynihan, the Vice-Chancellor recalled that he had been a student of the Leeds School of Medicine, that he had been connected with Leeds General Infirmary during the whole of his professional life, and that he had been elected in 1909 to the chair of clinical surgery. It had been Sir Berkeley Moynihan's privilege and pride to enhance the prestige of the school. During the great war he had been consulting surgeon to the Northern Command, and chairman of the Army Medical Advisory Board (an office he still retained). His office as teacher of surgery had enabled Sir Berkeley Moynihan to bring into play the magnetism of a rare personality, stimulating, suggestive, inspiring, vigorous, and lofty-minded. He had insistently urged upon his students that the first duty of a surgeon was to make use of every available source of knowledge to place the patient in the right position for recovery. His brilliant technique, his imaginative resourcefulness, his splendid courage, his delicate manipulative power, were the admiration of his professional brethren.

In presenting Dr. J. E. Eddison (who was not able to be present), Professor Wardrop Griffith said that the name of Emeritus Professor John Edwin Eddison would always be remembered by those who had watched the development of the University of Leeds. He had been a member of the council of the Yorkshire College from its earliest years; he had succeeded Sir Clifford Allbutt as professor of medicine, and he had taken a great part in the work of the Leeds Literary and Philosophical Society; he had also for some years been its president. Between that society and the University there had always been a close connexion. Dr. Eddison had served on the full staff of the General Infirmary from 1871 to 1892, and during all that time was actively engaged in teaching. As a teacher he was critical and suggestive rather than merely didactic, and probably the full and true value of his teaching was appreciated by his pupils only after they had been some years in practice.

UNIVERSITY OF DURHAM.

AT the convocation held on December 20th, 1924, the following degrees were conferred:

M.D. (*for Practitioners of Fifteen Years' Standing*).—P. Henderson, E. G. D. Milsom.

M.B., B.S.—Elizabeth M. Anderson, S. Annecke, Kathleen A. M. Ayton, Dorothy I. Brown, A. H. F. Cole, J. Davis, W. H. Denholm, C. F. Fairlie, J. Familton, Bertha Flintoff, D. R. C. Grey, J. B. Hartley, R. E. Holme, H. V. Ingram, A. G. Ogilvie, F. P. Rust, J. Stokoe.

UNIVERSITY OF ST. ANDREWS.

A MEETING of the Senate was held on December 20th, 1924, when Dr. W. L. Burgess and Dr. David Lennox were appointed Lecturers in Public Health and Forensic Medicine respectively. Professor E. P. M'Loughlin, Professor of Anatomy, University College, Dublin, was appointed an additional examiner in anatomy for graduation in arts, science, and medicine, and Dr. Alexander Trotter (Perth) an additional examiner in surgery for the Diploma in Dental Surgery.

QUEEN'S UNIVERSITY, BELFAST.

AT the meeting of the Senate on December 23rd, 1924, Sir William Whitla, M.A., M.D., D.Sc., was appointed Pro-Chancellor, Dr. John A. Milroy was appointed "J. C. White" Professor of Biochemistry, and Dr. Victor D. Allison "J. C. White" Lecturer in Bacteriology.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following candidates have been approved at the examinations indicated:

PRIMARY FELLOWSHIP.—J. J. Walsh.

FINAL PROFESSIONAL FELLOWSHIP.—R. H. J. M. Corbet, G. E. Strahan, and W. E. C. Wynne.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examinations indicated:

FINAL PROFESSIONAL EXAMINATION.—J. J. Bourke, A. F. Cook, T. F. Crean, T. A. Cronhelm, J. Dalrymple, E. J. A. Dougan, Mary J. Fagan, E. M. Finegan, E. C. Grey, T. T. Joyce, C. Keating, M. G. Kelly, A. B. Kennedy, Wilhelmina C. Maguire, J. C. Murphy, Mary J. McDermott, Mary E. Nelson, T. J. O'Connor, C. R. A. O'Riordan, A. Owen Flood, J. H. Owen-Flood, P. C. Raftery, T. C. Studley, R. Taylor, T. W. Wilson.

D.P.H.—Rosaleen H. Hoskin, Kathleen O. M. Kennedy, J. F. O'Connor, M. Sayers.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—A. H. Allam, D. T. Jenkins, A. Mishriky (Section I), J. Wilson.

MEDICINE.—S. W. Cuff, D. T. Jenkins, T. McD. Kellough, F. R. Ratnagar, C. C. Taffs, R. D. M. Tims.

FORENSIC MEDICINE.—C. L. Copeland, T. G. L. Davies, R. Norris, K. Samaan, P. B. Skeels, W. T. Swanton, C. C. Taffs, R. D. M. Tims, C. W. Warne.

MIDWIFERY.—W. T. Swanton.

The diploma of the Society (L.M.S.S.A.) has been granted to Messrs. K. Samaan, W. T. Swanton, and R. D. M. Tims.

Medical News.

As will have been seen in the newspapers this week, Dr. C. Courtenay Lord showed much courage and resource in his efforts to rescue a party of motorists whose car fell into the river Onny, near Craven Arms, in Shropshire, during the Christmas holidays; he succeeded in saving the lives of two people, and with great difficulty pulled a third (who died later) out of the flooded river. Dr. Lord is Assistant Medical Secretary of the British Medical Association.

THE arrangements for the next social evening, on January 19th, of the Royal Society of Medicine have been altered. The guests will be received by the President, Sir StClair Thomson, at 8.30 p.m., and at 9.30 Miss Lena Ashwell will give an address entitled "The Drama as a Necessity of Civilized Life."

REGULAR interchange of information is a notable feature of modern effort to control infectious disease. In England, for the use of medical officers of health and all others interested, the Registrar-General issues weekly and quarterly returns. There is, besides, for the confidential guidance of port health officers, a weekly record of infectious diseases at ports at home and abroad. Recently we called attention to the international action taken by the League of Nations in publishing annual reports of infectious diseases in many lands in every quarter of the globe, as exemplified in the volume for 1923. But note should also be taken of the monthly issue of similar reports in French and English. These contain in addition to tables of statistics, charts, etc., a general summary calling attention to the salient features of disease prevalance; the reports are on sale by authorized agents throughout the world. For Britain the agents are Constable and Co., Ltd., 10 and 12, Orange Street, London, W.C.2. The annual subscription is 10s., and the price per number is 1s.

AT the general meeting of L'Union des Syndicats Médicaux de France, held at the end of November, 1924, it was decided after a long discussion that the co-operation of the Syndicats Médicaux with the proposed insurance legislative measures would only be possible if the following conditions were accepted: Free choice of doctor, and strict professional secrecy; fees payable on a basis of visits, either according to a tariff regulating the financial responsibility of the State, but not limiting the actual amounts chargeable, or by arrangement between the medical practitioner and his patient, possibly in accordance with some agreement between the medical associations and the Government. With reference to the proposed new taxation a resolution was adopted that the medical practitioner should not be assessed on his apparent income without regard to his expenses; and that no new tax should be imposed on sickness by classifying medicinal preparations as luxuries. It was added that the medical staffs of hospitals should not be taxed.

THE late Lord Abercrombie, who was himself a distinguished authority on prehistoric archaeology, bequeathed to the University of Edinburgh a sum of £17,000 to found a chair in that subject. He also bequeathed to the University certain books to form the nucleus of a special section of the library, together with any other of his archaeological and anthropological books and photographs that the library committee of the University might select.

THE seventh Congress of the International Society of Surgery will be held in Rome from April 7th to 10th, 1926, when the following subjects will be discussed: Radium therapy of cancer of the uterus, treatment of cerebral tumours, surgery of the spleen, abscess of the liver, remote results of the treatment of Jacksonian epilepsy. Further information can be obtained from the Secretary, Dr. L. Mayer, 82, Rue de la Loi, Brussels.

THE new medical school building attached to the Hangchow Mission Hospital, which was opened at the beginning of October, 1924, is a combination of Chinese and foreign architecture, and provides an educational establishment on the most modern lines. On the ground floor is a large assembly room, four smaller lecture rooms, three laboratories

for physics and chemistry, and a museum. On the first floor there are two more lecture rooms, accommodation for the medical staff, and laboratories for biology, histology, and pharmacology, together with a library and reading room. The pharmacology laboratory contains two lines of steel drums, driven by an electric motor, for recording muscular action. The third floor of the building provides dormitories for seventy-five students, and there is additional accommodation in the old building for sixty. The old building also has a lecture hall for seating 1,000 students, and is fitted with a cinematograph. The medical school is attached to a hospital containing 500 beds and dealing with nearly 40,000 patients annually.

THE Joint Nursing and Midwives' Council of Northern Ireland, being about to revise its list of examiners, invites applications from registered medical practitioners, including women, who would be willing to act. Particulars can be obtained from the Registrar, 118, Great Victoria Street, Belfast, to whom applications should be sent not later than January 15th.

THE Harben Lectures of the Royal Institute of Public Health will be delivered at its house (37, Russell Square, London, W.C.) by Dr. Edgar L. Collis, professor of preventive medicine in the University of Wales. The subject of the course is phthisis and industrialism (national and occupational), with reference to other infectious diseases. The lectures will be given on January 26th, 27th, and 28th at 4.30 p.m. on each day. The lectures are open to the public.

POPULAR science lectures in aid of King Edward's Hospital Fund (7, Walbrook, E.C.4) will be delivered during the first three months of 1925, at various centres in London. The lectures will deal chiefly with scientific discoveries and achievements in recent years in the departments of biology, physics, chemistry, and physiology; they will be illustrated by experiments and demonstrations, or by lantern slides.

A SESSIONAL meeting of the Royal Sanitary Institute will be held at the Town Hall, Newcastle-on-Tyne, on Friday, January 16th, when, with Professor H. R. Kenwood, C.M.G., M.B., in the chair, a discussion on maternity and child welfare practice will be opened in critical papers by Dr. A. F. G. Spinks and Mr. H. Harvey Evers, M.S., F.R.C.S., at 4 p.m. Other papers will be read in the evening. On Saturday visits will be paid to the maternity and child welfare centre, to a maternity hospital, to a model dairy, and to the new public baths.

A HOSPITAL, health, nursing, and midwifery exhibition and conference will be held at the Central Hall, Westminster, from April 20th to 24th. The railways have consented to issue tickets at the single fare and a third for the return journey. Further particulars can be obtained from the Organizing Director, 12B, Belsize Park Gardens, London, N.W.3.

THE issue of *Nature* for this week (January 3rd) will contain an article by Professor E. H. Starling on the scientific work of Professor I. P. Pavlov. It will be accompanied by a photogravure plate portrait suitable for framing.

NEW YEAR HONOURS.

THE New Year's honours list contains the following names of members of the medical profession:

K.C.V.O.

HENRY JOHN FORBES SIMSON, M.B., C.M., F.R.C.S.Ed., Surgeon to the Hospital for Women, Soho Square, and Obstetric Surgeon to the West London Hospital.

Knighthood.

JOHN CAMPBELL, M.Ch., F.R.C.S., LL.D., Senior Surgeon to the Samaritan Hospital for Women, Belfast, and the representative of Queen's University in the Northern Ireland Parliament.

FREDERICK GOWLAND HOPKINS, D.Sc., M.B., F.R.C.P., F.R.S., Professor of Biochemistry in the University of Cambridge.

THOMAS MORISON LEGGE, C.B.E., M.D., Senior Medical Inspector of Factories, Home Office.

HOLBURT JACOB WARING, C.B.E., M.S., F.R.C.S., Senior Surgeon, St. Bartholomew's Hospital, and Vice-president of the Royal College of Surgeons of England; Vice-Chancellor of the University of London, 1922-24.

Major-General ROBERT CHARLES MACWATT, C.I.E., M.B., F.R.C.S., Director-General Indian Medical Service.

FREDERIC TRUBY KING, C.M.G., M.B., Director of Child Welfare, New Zealand Department of Health.

D.B.E.

Miss LOUISA B. ALDRICH-BLAKE, M.S., M.D., Dean of the London School of Medicine for Women.

C.B. (Military).

Major-General S. F. ST. DAVIDS GREEN, C.B.E., M.D., D.D.M.S., Western Command, India.

Major-General H. J. K. BAMFIELD, D.S.O., I.M.S., D.D.M.S., Eastern Command, India.

C.M.G.

W. J. J. ARNOLD, M.B., Colonial Surgeon, St. Helena.

C.I.E.

Colonel C. H. BENSLEY, I.M.S., Inspector-General of Civil Hospitals and Prisons, Assam.

Lieut.-Colonel E. C. G. MADDOCK, I.M.S., late Civil Surgeon, Poona.

Lieut.-Colonel J. C. S. VAUGHAN, I.M.S.(ret.), Superintendent Radium Institute, Ranchi.

Kaisar-i-Hind Medal.

S. C. HORMUSJI, M.D., First Assistant Health Officer, Bombay.

HENRY T. HOLLAND, M.B., F.R.C.S.Ed., Medical Officer of the Church Missionary Society, Baluchistan.

Mrs. GRANT STAIT, M.D., American Baptist Mission, Udayagiri.

Other birthday honours of interest to the medical profession are the Order of Merit awarded to Sir James Frazer, author of the *Golden Bough*, and to Sir Ernest Rutherford, pioneer investigator of radio-activity and the constitution of the atom; and the knighthoods conferred on Mr. W. B. Hardy of Cambridge, Secretary of the Royal Society, and on Mr. Edmund Gosse, who delivered the first Lloyd Roberts Lecture at the Royal College of Physicians, on personal relations between medicine and literature (BRITISH MEDICAL JOURNAL, November 24th, 1923, p. 999).

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.* Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—not necessarily for publication.

ALL communications with reference to advertisements as well as orders for copies of the JOURNAL should be addressed to the Financial Secretary and Business Manager, 429, Strand, London, W.C.2. Attention to this request will avoid delay. Communications with reference to editorial business should be addressed to the Editor, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.2.

Communications intended for the current issue should be posted so as to arrive by the first post on Monday or at latest be received not later than Tuesday morning.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediaecra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

Cost of Repairs and Improvements.

"H. G. S." inquires: Can I deduct the cost of doing up my treatment rooms, such as laying new floors, putting up partitions, and the cost of electrical instruments?

*** The same principle governs both classes of expenditure—namely, that the cost of improvements or of adaptations for special purposes represents capital outlay and cannot be deducted for income tax purposes. But in so far as the expenditure covers ordinary repairs it is deductible—for instance, if the floor in question was in such a condition as to make it advisable to replace it, then the cost of putting in the same sort of floor would be allowable, but not any extra expense incurred because a different or improved form of flooring was desired; similarly the cost of installing an electrical equipment is not allowable, but the expense of maintaining the apparatus in working order is deductible.

AGED BLIND.

"H. R."—Information regarding institutions where aged blind may be received into residence may best be obtained by application to the Secretary of the National Institute for the Blind, 224, Great Portland Street, London, W.1. The activities of the institute cover all parts of the country; it has local agencies and works in association with local societies for the blind. Since the inquiry comes from Buckinghamshire, communications might also be made to the Secretary of the Buckinghamshire Association for the Blind, Lindford Hall, Wolverton.

TREATMENT OF GOITRE BY IODINE.

DR. G. W. JOSEPH (Prestatyn, North Wales), in reply to Dr. McAskie (December 27th, 1924, p. 1216), writes to say that he has supplied details to all medical practitioners who have made personal application to him.

LETTERS, NOTES, ETC.

ALLONAL.

"M.R.C.S., L.R.C.P." writes: I wish to add my warning to that frequently given by Sir William Willcox in regard to veronal allonal and all other veronal compounds. I have seen to my grief and misery the effects of allonal on a dear one when on his death-bed. If I can be of use in warning fellow medical men I shall feel happier. Small doses of heroin, as recommended by Sir William Willcox, or, if I may give my own experience when dangerously ill, doses of morphine and atropine, will bring relief without the dreadful mental distress which is brought about by veronal allonal and other veronal types of hypnotic. Morphine and atropine is a kindly thing and a blessed thing, and if anyone reading this has a dear one hopelessly ill I ask that my bitter experience of this dangerous drug allonal be acted upon.

HYPERPYREXIA IN INFLUENZA.

DR. J. ROBERTSON HALL (Fence Houses, co. Durham) writes: I have just attended a case, which unfortunately proved fatal, of influenza with so unusually high a temperature that I think it worth recording. The patient was a married woman, aged about 42, with three children, the youngest about 2 years. She was not pregnant when she died. She had a very severe attack of influenza with a high temperature, on an average about 104° F. for the first four days. On the morning of the fifth day after I was called in, I was sent for about 6 o'clock, and on arrival found her in a serious state, with a temperature of 110° F. Needless to say, she did not live long—in fact, she died in less than an hour after the temperature was taken by me. I could discover no evidence of pneumonia and her breathing was never difficult, but all through her illness she complained of severe headache. The really remarkable point, in my view, was the extraordinarily high temperature of 110° F. In seventeen years' experience of busy industrial practice I have never come across so high a temperature before.

*** The fact that hyperpyrexia may occur in influenza is noted in some of the textbooks, but it seems to be a rare occurrence.

DERMATITIS HERPETIFORMIS GESTATIONIS.

DR. C. H. S. HORWITZ (Streatham, S.W.) writes: The following case is of interest because of the rarity of the complaint and the severity of the skin eruption: Mrs. X, aged 19, a primipara, had been perfectly well. On awakening in the morning three days before the birth of her child she noticed one or two "spots" on her face and neck. She had never previously had any skin affection to her knowledge. My attention was called to the eruption during the day, and I was struck with the similarity it bore to the rash of chicken-pox, with the exception that the vesicles were round instead of oblong. She felt quite well; the temperature was not raised, and the pulse was normal. Several more "spots" appeared during the day, but next morning she presented a very woebegone appearance; her face, neck, chest, back, and legs to the knees were covered with an inflammatory, superficially seated, multiform, vesicular eruption. Upon pressure the vesicles easily ruptured and exuded a clear serum. The vesicles varied in size from a pin's head to a pea. She complained of intense itching. I judged the condition to be due to some toxic condition, caused, I thought, by the presence of the child, and I felt fairly confident that after the birth all would be well. With the birth of the child the source of the toxins would be removed, I argued, and I was able to reassure the parents, who were naturally very concerned about their daughter's appearance. I diagnosed the condition as being due to dermatitis herpetiformis gestationis, which usually clears up with the birth of the child. I ordered arsenic internally and sulphur ointment: this gave great relief from the itching. After the birth there were no more fresh eruptions and the vesicles rapidly commenced to dry up and scab. In forty-eight hours all irritation had ceased, and in a few days nearly all signs of the eruption had vanished. The distribution of the rash—about the face and arms on the second day of the occurrence—was not at all unlike small-pox. The child was not affected.

POISONING BY POTASSIUM CYANIDE.

THE following case is reported by Dr. JOHN REID and Mr. JOHN KENNEDY of Ashford, Middlesex: In the early morning one of us was called to see a man who was stated to be unconscious in bed, and supposed to have had a fit. The man, aged about 60 years, was completely insensible and deeply comatose, with hands clenched, the eyes fixed, staring, and completely insensible to light, and the muscles of the limbs relaxed and flaccid. There was froth on the mouth, the breathing was slow, deep, and convulsive, the pulse very quick and almost imperceptible. It was obviously a case of poisoning. On searching we found a packet of potassium cyanide inside the pocket of his coat, which we subsequently ascertained was sold by the chemist for silver plating; 15 to 20 grains had been swallowed by chewing, no vessel having been used. As we expected, the usual treatment, such as washing out the stomach with hydrogen peroxide, injection of camphor oil, strychnine, and atropine, and artificial respiration, was of no avail, and death ensued in an hour and twenty minutes. At no time was there any reaction to treatment. There were no convulsions before death. Death was due to asphyxia, as the heart continued to beat for a considerable time after respiration had ceased.

NITROUS-OXIDE-OXYGEN ANAESTHESIA FOR MAJOR OPERATIONS.

DR. CHARLES T. W. HIRSCH (London, S.W.) writes: The recent remarks of coroner and pathologist at an inquest on an unfortunate fatality should, I suggest, not be passed by anaesthetists without protest. The impression given by the coroner was that nitrous oxide was an anaesthetic for dental operations only, and the pathologist seemed of the same opinion—that for long operations unconsciousness could not be maintained with nitrous oxide if oxygen was given, and that if the latter was not administered suffocation occurred. As an anaesthetist on the staff of eight hospitals I desire to enter my protest against this scathing condemnation of the value of nitrous oxide-oxygen in major operations. I have administered that anaesthetic in many cases; I have had it myself on five occasions. I submit that it is a most useful and valuable anaesthetic, and though for certain abdominal operations I admit it may not alone give all the relaxation the operator might desire, still, with a little bubbling through ethanesal, the relaxation needed can always be had. Even if thus a small amount of ethanesal is employed, that is preferable, from the patient's point of view, to an anaesthesia solely procured by ether or ethanesal. The little that may have to be used rarely produces any post-anaesthetic effects.

NASAL NEUROSIS.

DR. CHARLES J. HILL AITKEN (Kilnhurst, near Rotherham) writes: Dr. Neil Maclay states in his article (BRITISH MEDICAL JOURNAL, November 29th, 1924) that after a dose of guanidine "increased vascularity in the nose was noted, as well as an increase of mucus, and each animal performed active chewing movements and nose rubbing." Some years ago I was much bothered at sick parades by a delicate-looking man whose complaints were so curious and so varied that I labelled him a case of psychasthenia (Purves-Stewart, *Diagnosis of Nervous Diseases*). One day it struck me this man had nasal obstruction and that he was a mouth-breather. Examination proved I was right. I taught him to breathe through his nose. Had I not seen cases of children who had had adenoids removed showing wonderful results I would have been surprised at the patient's rapturous declarations of the change in his outlook on life. Some months later this formerly poor complaining individual told me he had had one symptom he had not confessed to me. This symptom was attacks of gluttony. He asked me now to explain how he never, except very occasionally, had such attacks. Experiment showed that excessive appetite was present when the nose became blocked during a meal. By experiment we induced this blockage and the patient wolfed down his food. I painted the anterior part of the vascular mucosa with a weak solution of cocaine. Shortly after the patient said, "Take away this food. I don't want it." His nose had cleared and synchronously his appetite failed. The explanation I gave was this. Purves-Stewart states:

> "A certain amount of clinical evidence supports the view that there is a special cortical centre associated with the sensations of hunger and thirst. It would appear to be in the temporal lobe, at or near the olfactory centre. Abscesses, injuries, and tumours in this region have been associated with voracious appetite." (Page 47 ibid.)

In the case I record there was no central lesion. There was, however, peripheral irritation in the nose and hence voracious appetite, which ceased the instant the nasal passage was opened up and pressure removed.

"A RICH SAMPLE OF MILK."

DR. H. D. BISHOP (States M.O.H., Guernsey) writes: I recently purchased for analysis in the ordinary way a sample of milk from a small shop in Guernsey. The analysis showed: Total solids, 16.21; fat, 6.9; solids not fat, 9.31; and cream, by volume, 26 per cent. I naturally thought that this milk must be either mid-day, afternoon, or "strippings," but upon investigation found that it was morning's milk and the mixed yield from a herd of twelve Guernsey cattle.

A WARNING.

DR. HUBERT COX (Edgbaston) has been informed that an individual has been making use of his name and address in the Luton district for the purpose of obtaining money from doctors. He desires to put doctors on their guard. It is suggested that any practitioner receiving a visit from such a person should communicate with the police.

BRIDGE OF WEIR SANATORIUM.

THE second issue of the *Bridge of Weir Sanatorium Christmas Magazine* is a matter for congratulation. The editor and the various contributors have produced an interesting, amusing, and well illustrated magazine, which should win the approval of those for whom it is written, and contribute to the establishment of the hopeful spirit, the importance of which is emphasized in a foreword by the medical superintendent, Dr. James Crocket.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 32, 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 16.